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EARTH GARDEN

-natural living and growing

- MARY'S PLACE
- MACROBIOTIC FOOD
- BY HORSE & CART
- NOTES ON OATS
- BUILD WITH STONE
- ORGANIC FARMING
- FRUIT WINES
- KEEPING DUCKS
- MAKE A RUG FRAME
- SEPTIC TANK GAS

No.9

JUNE, 1974

GAS POWER 2: ALTERNATIVES TO PETROL, LPG CONVERSIONS, DEPOLLUTE YOUR CAR

$1

WINTER

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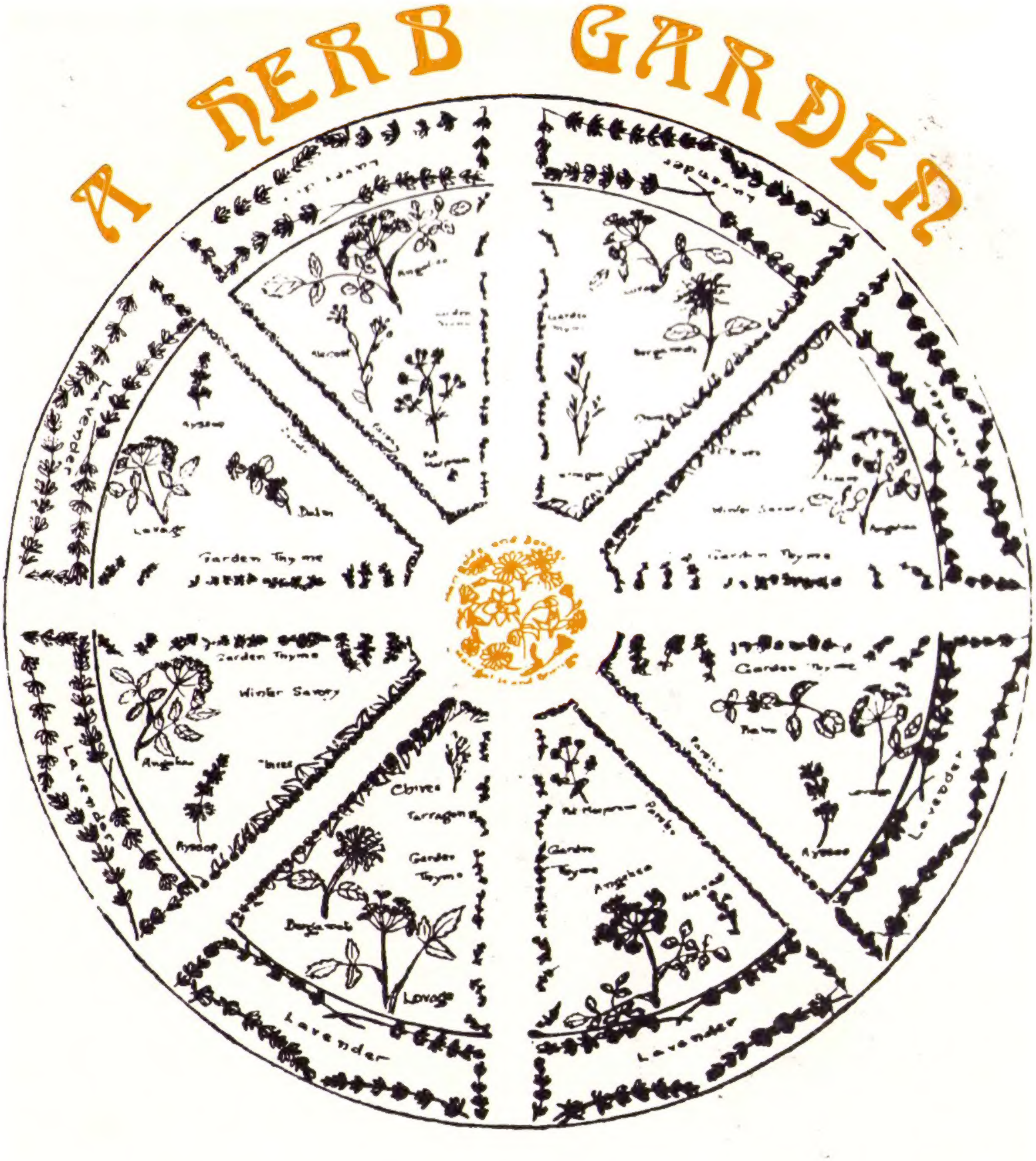

DESIGN FOR A HERB GARDEN

Planned by Eleanour Sinclair Rohde.

From: Culinary and Salad Herbs, Eleanour Sinclair Rohde, Country Life, 1940. Now reprinted as a Dover paperback (1972).

EARTH GARDEN No.9

EARTH GARDEN presents a range of natural lifestyles. It is intended as a key to sources, practical ideas, alternatives and self-sufficiency.

EARTH GARDEN is concerned with non-polluted living and growing, the back-to-the-earth movement, surviving in the city, the bush, food and diet and the inner changes which follow when you are in tune with Nature.

Let us lead you up EARTH GARDEN's path to the good life.

There are still no advertisements in EARTH GARDEN. Books, places and products recommended are those we think relevant.

Edited and published by Irene and Keith Vincent Smith.

Illustrations by Helen Haggath.

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Land Lines

We are getting together a co-op down here and require two more families (preferably with children) to launch it. We own 310 acres of land in the Strathbogie Ranges about six miles north of Merton, of which one half is heavily timbered and one half cleared.

At present we have four families committed to a 52 acre shareholding for $5000. So, if you are interested in hard work, organic farming, alternate power, own school etc, please write and let us know.

Alan and Jan Masson, 27 Ashton Road, Shepparton, Victoria, 3630.

A vacancy exists at 'Werona' farm community, Kangaroo Valley, for a single person interested in simple vegetarian living and organic gardening. Previous farming or gardening experience is not essential, but it is hoped that the applicant may have some special skills such as beekeeping, mechanical engineering, first aid, welding, carpentry, vegetarian cuisine or bookkeeping.

During the first three months temporary members are expected to work four hours a day in return for free board and lodging. After staying three months at Werona a person may continue on a permanent basis and share the farm income and expenses. A small self-supporting community is envisaged. Much of the spadework has already been done, but there is still plenty of hard work ahead. No drugs are allowed.

For further information, write to Ed Stanton, 'Werona', Mt Scanzi Road, Kangaroo Valley, NSW, 2577, or phone KV 65 1119 about 8 pm.

I am interested in acquiring a few acres within easy reach of Melton. Price is the big obstacle. There may be someone with acres who may sell or go in with me to run on organic lines and put into effect some of the ideas in EG. They would need to be non-smokers.

Yours sincerely, L. Thorne, 14 Quaile Crescent, Melton, Victoria, 3334.

I am interested in joining a self-subsistence commune/community, or getting in contact with people working towards one. I wish to live organically, off the land, but I don't mind the occasional meat dish or a few modern contraptions such as a stereo. Am interested in batik and other crafts. Give me a few months to get some bread together.

Dave Lambert, C/- Warrego Mine, Tennant Creek, Northern Territory, 5760.

I have ten acres of partially cleared land about 11 miles from Brisbane in the Capalaba area. Over the next 12 to 18 months I propose to develop this land as a sort of communal retreat farm.

There are no buildings on the area as yet, nor power or water, but I don't anticipate problems with this. I would like to contact persons who would like to be involved in this development (not financial backers!) and perhaps some who would be interested in living in the area. I am an SRF member and priority would be given to other SRF members and other yoga oriented persons.

I have several commercial farms in this area and a background of farm experience.

John Swinburne, PO Box 54, Cleveland, Queensland, 4163.

I would like to own a piece of Australia, preferably in the NSW country (not too far west), Victoria or Tasmania. I am only able to spend $600 or less, so I'm not going to be fussy if the land is farmable, or just useful for the wildlife and beauty. I don't mind how isolated the area might be; the size, terrain or climate is of no consequence.

Pat Maxwell, 121 Condamine Street, Balgowlah, NSW, 2093. Telephone: 94 4278.

We are a small group of people, 20-40 years of age, who want to buy 30-40 acres about 60 miles south of Perth (the West being the sunny side of Australia minus humidity). We want to be part of a fairly small community, 12-18 members, providing aloneness and togetherness to whatever extent individuals or families require.

The soil and bush south of Perth is excellent. We want to do some organic vegetable growing, establish an orchard and a herb garden. A living could be earned either on the property or by obtaining employment nearby (we have Harvey in mind).

Free accommodation at the following address for interested travellers:

David Ashton & Carla Van Raav-Ashton, 7 Alford Street, Balcatta, WA, 6021.

Couples with kids please contact us to take part in group purchase of land in secluded south-eastern NSW. We are looking for people who are seeking alternatives in regard to the basics — education, disentanglement from the established economic system, food gathering, etc.

Norm and Wendy Robinson, Belgrave-Hallam Road, Belgrave South, Victoria, 3160.

We need a mature, stable couple to help set up a self-supporting intensively farmed, irrigated 15 or so acres among our 1000 or so acres of bushland. It's a wildlife sanctuary, which means no dogs or cats. We will supply a house and rent you a few irrigated acres so you could be independently self-supporting eventually.

You could help us now and then with our projects in lieu of rent.

We are two pretty normal people (artists, wildlife photographers), with a passionate interest in wildlife and would prefer people with at least a respect for the very abundant wildlife on the property. Other priorities are independence, peace and quiet privacy . . . and we don't like drugs.

The place is 300 miles from Sydney and has no electricity, phones etc and the yakka is sometimes hard. It's a dry, 20-inch rainfall, which we find a stimulating challenge. The bush is about the most beautiful we've seen.

David Schlunke, "Big Bush", Gidginbung, NSW, 2695.

FOR SALE: Our mountain, 3,350 feet above sea level, surrounded by 387 acres of secluded, unspoiled bushland abounding in wildlife. Panoramic views and outstanding balancing rock formations. Many spring-fed waterholes and a perennial stream. Several dams for stock and irrigation.

Our climate is healthy and invigorating and has a good rainfall. The soil responds well to organic farming and the subsoil has a cementing property suitable for adobe and pise work.

Our buildings consist of: An oldtimer's cottage built around 1902 (similar to the one on the cover of EG7), with four rooms, fuel stove and water tank, surrounded by a large garden of herbs, flowers, vegs, fruit trees etc. Using natural stone we built a 10 x 15ft goat-hut. Our house, at present being built, is pise on a concrete foundation, the first unit being two rooms, 12 x 15ft each, with an adobe block toilet nearby.

There are various eucalypts and borer-resistant Cypress Pine. A small vineyard has been planted. We have about 10 acres of improved grazing pasture and 10 acres of fallow ground. Please send SAE for particulars.

S. A. & R. I. Dark, 'Figtree Mountain', PO Box 225, Inverell, NSW, 2360.

The cottage, drawn by Mary's daughter Louise.

MARY'S PLACE

BY MARY THOMPSON

Last night there was a downpour — the second in a couple of weeks. I keep going outside to see how much greener the paddocks are.

In the dark Graham was up, bumping around, putting newspapers inside the back door to soak up the water which fell faster than it could drain away, while I lazily slept and half woke under the green mosquito net.

This morning I opened the French windows next to the bed and watched the sun shining on the little drops the breeze was shaking from the Cypress tree. The half-grown chicks looked bedraggled, but skipped along with their mother to see what had been unearthed by the rain.

That Cypress must be all that is left of a hedge planted by a pioneer across the front of the house. Now it is tall and spindly like a Van Gogh.

The house, which really only leaks under extreme conditions, has been built in stages. The original mudbrick hut had beams of round bush poles. The other two rooms, added later, are more polite, and made of handmade brick. Each has its own fireplace and elegant French windows.

With its three-pointed roof, the little house nestles into the hillside, protected by an ancient stone wall — the life work of another pioneer.

In the old days the creek flats were intensively cultivated as a market garden and there were vines on the hillside. The apple trees are still bearing today.

When we first came here there was a horse living in the house. Now it is home and there is a comfort here that far exceeds that of my four-years-away, so remote city house.

This morning I started to pull a few weeds — the soil is soft after the rain and they came up easily. Sadly I note that the chickens have pecked through one of my seed-catching paper bags, but it is delightful to see the tiny round leaves which sprang from the spilled brocolli seed. I'll plant them out when they get bigger.

The chicks range freely during the day and fly over the fence of the vegetable garden to peck the ripening tomatoes. We planted extra tomatoes to sell and it's a daily battle beating the chicks to the fruit. With capsicum, corn and cucumbers, the tomatoes are sold to Castlemaine hotels.

Chopping up tomatoes to make sauce, I discovered a few maggoty worms inside. We 'natural' gardeners have our troubles. Like the garlic spray with which we assiduously drowned the cabbages and which completely failed to deter the dreaded caterpillars. They just seemed fatter than ever and gave off a strong smell of garlic when crushed. Derris dust proved more effective. As we cut the cabbages new heads appeared on the old stumps and we allowed a few to grow into good sized cabbages.

The pumpkins produced sweet fruit. They were planted with black plastic mulch covering lots of compost and manure. The controversial black plastic was used on the strawberries too. Last year's parent strawberry plants fruited well before their planted-out runners, so there was continuous fruiting for months. We were truly sick of strawberries!

A brew of liquid fowl manure applied through the holes in the plastic, helped the strawberries along, so did picking off early runners as they grew.

I've found a use for that old nuisance herb, mint. It makes a rich yellow when used as a dye for spun wool. Onion skins are good too and a mound of them is building up. Weight-for-weight is the dyeing formula: to dye a pound of wool it takes a pound of skins, and that's a lot! Put them in an old stocking leg and tie it so that pieces of skin aren't boiled up amongst the wool. I soak my spun wool overnight in alum solution first to get a rich colour.

The afternoon sun shines in through the open window on to my chopped red tomatoes. I can look out and see pink belladonnas and grey box trees and the stone wall on top of the hill. The magpies sing and the ginger beer brews under the tank — now brimful with water.

The tortoiseshell kitten lies comfortably on the oregon table and the old iron scales and weights don't have to remind me that one really doesn't need the plastic age.

We can't really be described as 'drop-outs'. When Graham is not working at home he does repairs and small construction jobs for local people and expects to use his newly-renovated bulldozer to make some money.

I teach three days a week at the Technical School here and love it. The little boys learn to spin and weave. It's a fairly craft-oriented town and my senior photography students have led me on some amazing excursions, like our visit to a pig farm. What a smell we brought back to school with us, but what great photos!

Even if we could make a good enough living from our sheep, I think I'd still need that people-contact I get in the town. We are members of the Art Co-Operative in Castlemaine and take our turn every fourth weekend at minding the shop.

We sell only locally-made craft work and paintings to a steady stream of visitors and customers at the weekend. We take our own wool clip in and could sell it six times over — there is such an interest now in spinning.

We've been working to produce top-grade spinning wool — all colours — and mate a mixture of breeds with that in mind. Dorsets, Lincolns, Polwarth, Southdown and Merinos — all go into the brew. Some Romney Marsh-Corriedales will be added in September.

This morning a sadness: one of the little Lincoln rams has pink-eye — contagious ophthalmia — in both eyes. He came to my voice for his oats and chaff, but bumped into things in the way. Graham had to squirt a horrible red spray into his eyes which had cured a previous outbreak.

The eye clouds with a milkiness that is unmistakable. Naturally, one eye is less distressing than two. Two means temporary blindness, and this makes it hard for the sheep to find food and water. The blind sheep, usually lambs, have to be hand tended and isolated because it is terribly contagious. The crusty tears rub off on to the grass (or hay in a feeder) and stay potent long enough for other sheep to come in contact. Even flies can transmit it. The lotion seems to soothe the inflammation, but it still takes its natural course of two weeks to heal. In severe cases an abscess develops and the eye can be permanently blind.

MARY'S PLACE: Right: Mary and her house.
Far right: Curing a sheepskin (Photo — Ken Dyer).
Middle: Graham calls up the sheep for a feed.
Bottom: Paper bags catch seeds for next year.
Bottom right: Bean tripods 'stretch' the area of the small fenced garden.
(Other photos — Keith).

I can't yet feel we can be completely natural farmers. We have to dip and drench and, although the dip is non-arsenic, it looks pretty poisonous, and the drench for internal parasites is an apple-green chemical.

If they were left to themselves, the sheep could be fly-blown, infested with lice and itchmite or become hosts to all sorts of worms and fluke.

Shearing this year was a mad time, full of excitement. We set up a borrowed wool sorting table near the yard. I was skirter and packed and labelled the fleeces as they came. Graham helped the shearer. Friends brought over odd individual sheep to be shorn. At one time there were seven cars, including Gael and Ed's gypsy truck (EG8). We fussed like silly mothers over the sheep. Louise was anxious for her grown lamb Gertrude because the shearing handpiece overheated.

We kill a big wether now and then for meat, and tan the skin. Next time I'll leave the wool unbrushed. I had hours of work because I tacked the skin to a board instead of stretching it on to a frame. The wool flattened against the board and I felt it needed brushing.

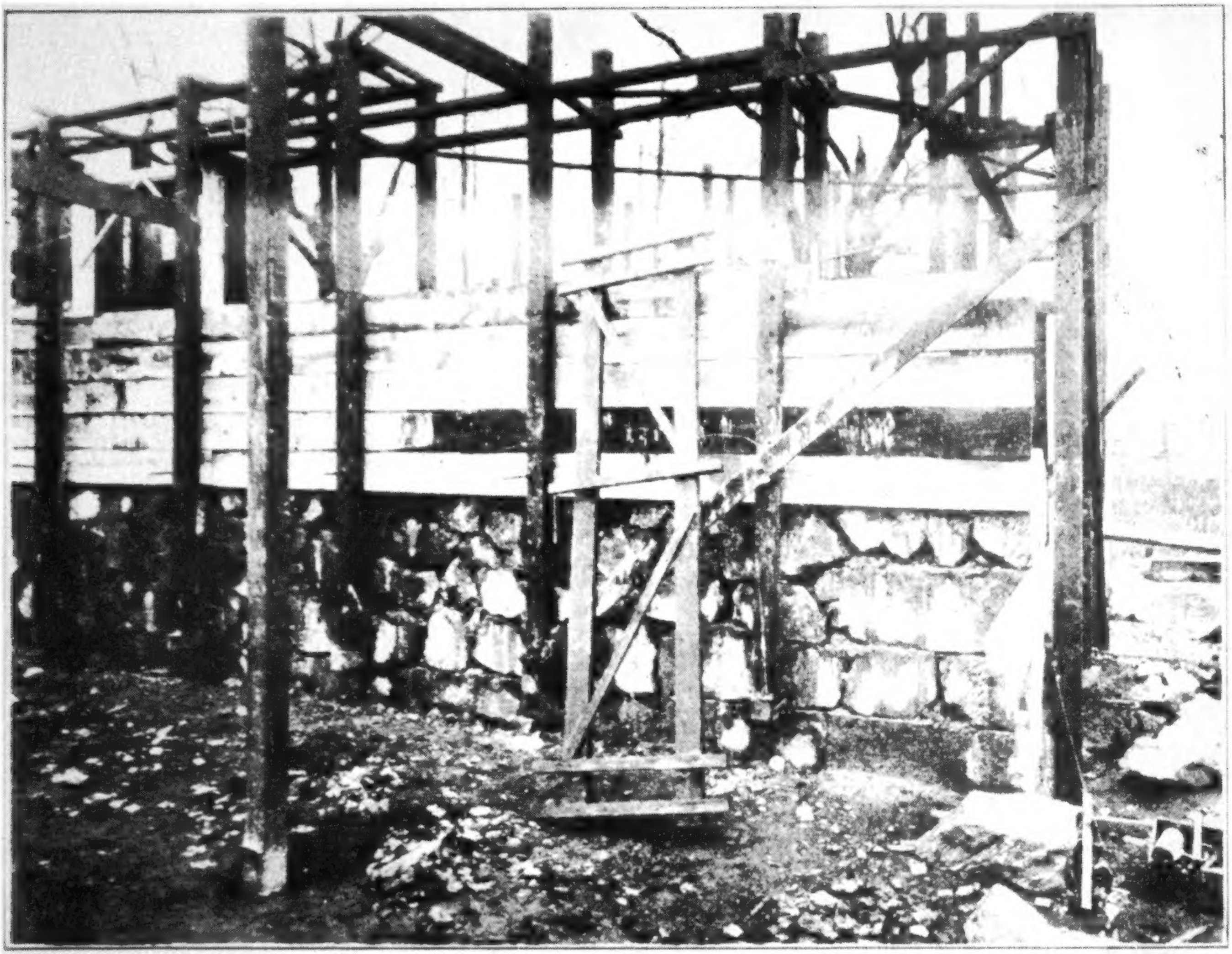
This tanning brew is okay for rugs, but a bit too stiff for garment making. The skin, straight from the animal, is washed in soft soap and rinsed, hung over the line, fleece outwards, to dry the wool. The moist skin side is painted with 1lb carb soda, one teaspoonful of alum and kerosine mixed to a paste. If the skin is stretched on to a rectangular strong frame it can be brought inside the house easily if it rains and the wool side will stay fairly fluffy.

Repeat the paste application each day until the back looks right (this may take a week). A bit of a rub with a half brick or a wire brush softens the suede. This is the easiest tanning method I've found . . . and I've used some strange recipes!

The brick floor has been swept and the sheepskin rugs shaken. I am ready for my weekend children. Custody demands they live in the city, but when they are here, Morgan will be paddling his raft on the dam and Louise will be spinning — getting her hand in to take off more prizes at the Castlemaine Show.

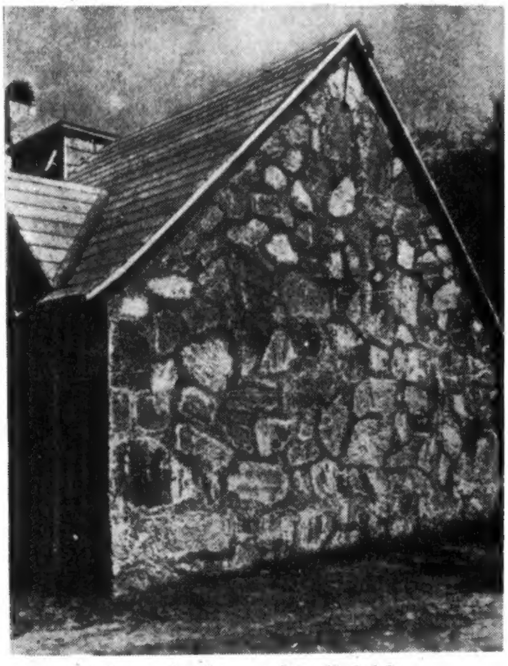
Nathan will do his homework and get in a drive or two — much to the envy of his city schoolmates. Our trainee sheep-pup Gandalf will be delirious with joy and we'll dine off Louise's pancakes again.

It's evening now. The sky (I can't remember the city skies), is a blue light, shading to yellow. The stone wall and the twisting box trees are silhouettes. The clouds are moving fast and fluffy, a million lovely shades of brown and grey. The brown and grey sheep are indistinct down on the creek paddock, their heads down, with no thought for the sky and its new moon, intent only on the new green grass after the dry summer.



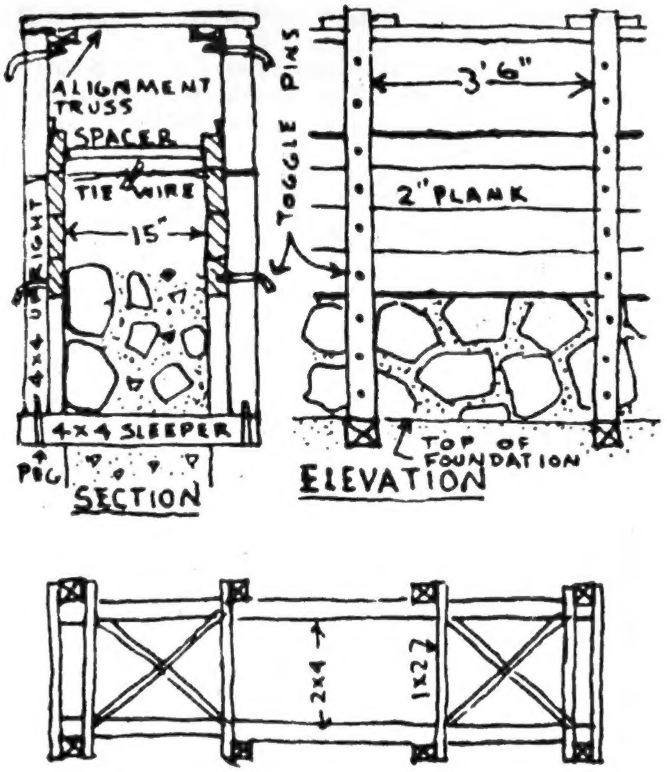
Ernest Flagg's mosaic rubble system. Forms are held in place with pegs through holes in uprights. At front is a dismounted alignment truss. Other trusses are in place.

Rubble wall being pointed up.



The wall above after finishing.

MOSAIC STONE RUBBLE



Flagg's forms (top) and alignment truss design

Stone will endure.

The house you build of stone will outlast you. It is an investment in the future and in your children — like planting a fruit orchard.

Earth, rock and timber are natural building materials. Australia's pioneers used these elements of the natural landscape to build mudbrick cabins, stone barns and slab huts.

You can gather stone from river beds, abandoned walls and houses, quarries and derelict mines, from road and railway cuttings or from excavating during dam and well building.

The art and technique of stone construction has been shielded for centuries by the stonemason. It is a skill which takes many years to acquire. Each stone is squared off and dressed "just so". Each stone has its place in the wall.

But the "mosaic rubble" system of stone building, developed by American architect Ernest Flagg in the 1920s, brings the possibility of building a stone home to everybody.

The walls are of concrete, faced with stone, built up inside removable wooden frames. Local field stones are placed flat against one side of the form and a sticky concrete mix (sometimes reinforced with smaller stones and rocks) is poured in behind them.

When each section is dry, the forms are moved higher and the process is repeated.

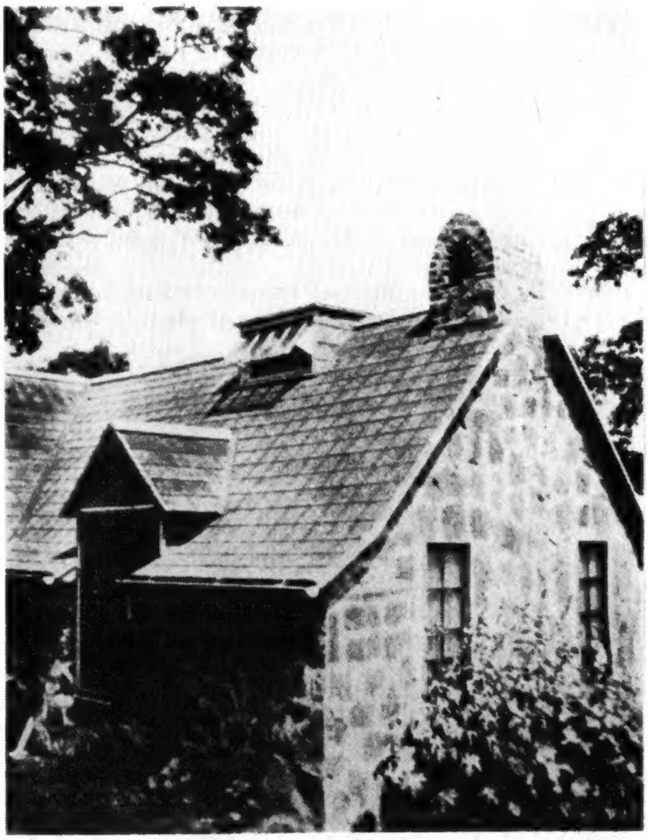
"No mortar is placed between the stones as they are laid", Ernest Flagg explained in his book, Small Houses (1921), "but they are put in dry like pieces of mosaic".

The finished wall is not merely a stone dressing or veneer, but it is bonded into the concrete, with some stones often extending three-quarters of the way through the wall.

Outside, the stone walls are rough and need to be "pointed up" afterwards by trowelling mortar into the joints. They may be left untreated for special effect.

Flagg's wooden forms were built by embedding 4 x 4 inch 'sleepers' along the concrete foundations when they were being poured. To these he attached 4 x 4 inch studs (vertical uprights) at 3 feet 6 inch intervals to the wall height required. Holes were drilled into these at regular spacings to take wooden pegs which held in place the 2 x 6 inch planks of the form.

A movable 12 foot long alignment truss or frame was used to keep the studs and forms in place. Concrete was poured around the studs, which became part of the inside wall of the house and could be used as 'furring strips', to which planking or laths for plaster could be attached.

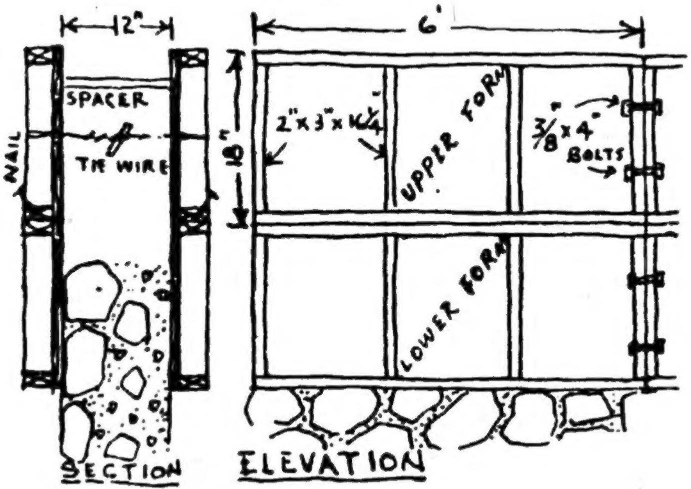


A Flagg house, showing the typical ridge-dormer, open at top, and lower conventional dormer window.

Flagg used a weak concrete mix of one cement, five sand and 10 gravel.

He went on to oversee many large housing projects which used the mosaic rubble system. His homes were characterised by their dormer or ridge dormer windows and high attic first floors.

To cut down costs he built low walls — five feet high for a single floor house and 12 feet high for a two-storey. He liked to build 'wings' about a courtyard, so that the owners could add rooms as money and need arose.



Details of Nearing forms in place

There have been many innovations on the Flagg system, notably by Helen and Scott Nearing at Forest Lodge, Vermont, by Frazier Peters and by Paul Corey. They all offer improvements, but are variations on a theme which owes its genesis to Flagg's original concept.

The Nearings built a smaller, more portable plywood form, similar to those used in rammed earth building. Their forms were six feet long and 18 inches wide, with side walls of three six-inch boards, rather like a shallow box with no top or bottom. It eliminated Flagg's expensive uprights.

Two forms could be fastened end-to-end with bolts and the Nearings usually started building at corners, working inwards to the centre of the wall. Forms were used in pairs, one above another, tied together with wires.

When the first set of forms was filled with stone and mortar (using a one cement, three sand and six gravel formula), a second set of forms was placed on top and filled. When the concrete in the upper form was set, the wires in the lower form were cut and it was moved to the top of the upper form and tied with new wires, in a kind of 'pick-a-back' operation as the walls rose.

A full account of how the Nearings built their cabins and barns is given in the 35-page chapter, "We Build A Stone House" in their practical and philosophical book, Living The Good Life (1971), reviewed in EG2.

"We have gone into so much detail on stone construction because we enjoy the solidity and massiveness of stone and we would like others to have a similar opportunity, both of work and enjoyment," the Nearings explain.

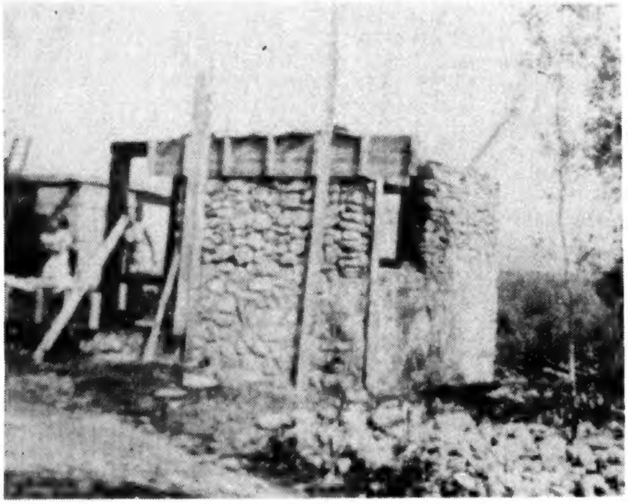
"We are convinced that anyone who will follow these instructions can put up a satisfactory stone building if he is willing and able to take the time. If he does build with stone, he will get a thrill from the day he discovers a blue-ribbon rock and places it in its proper pile, until he finds the right place in wall, floor, fireplace or chimney, and sees his rock set and solid years after, built into his house", they conclude.

Frazier Peters, an architect-turned-farmer, built several mosaic rubble stone houses using slatted forms which covered each complete wall of the house. This seems excessive to us. It does have the advantage of having window and door frames included.

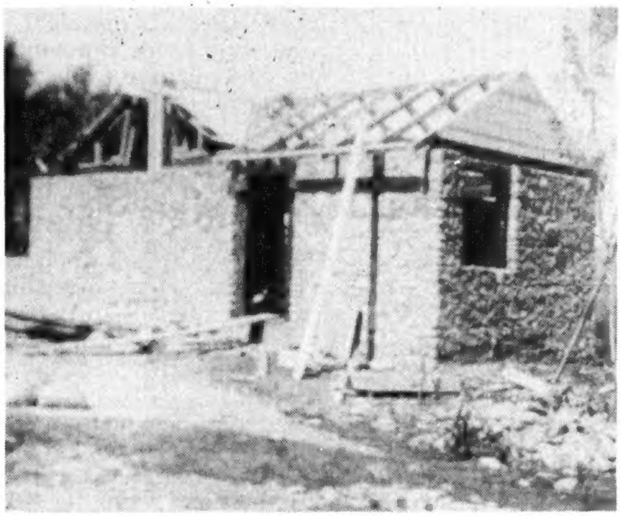
Peters' book, Pour Yourself a House (1949), is, however, an essential primer on amateur home building. It starts with plumbing, then takes you right through 'how to dig a trench', foundations, doors, windows and cabinets, finishing up with septic tanks, a fireplace and plastering and glazing.

He points out that most of the world's houses were built by the unskilled labour of farmers — self-sufficient men who 'designed' and built to last without benefit of architect or tradesman.

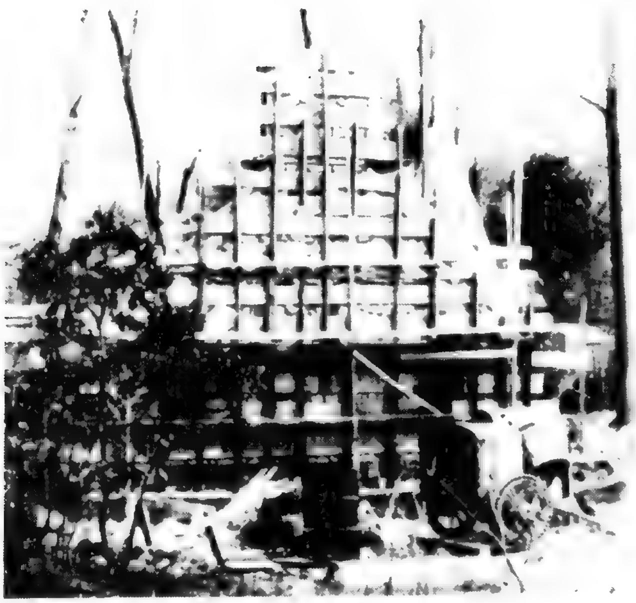
Paul Corey seems to have developed the most practical method. It can be used to pour walls of concrete or of concrete and stone mosaic facing.



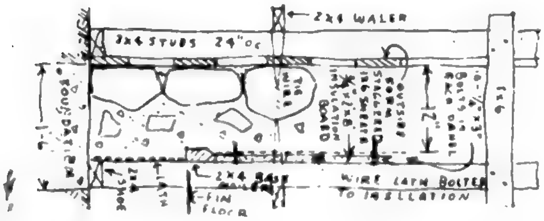
A stone cabin built by the Nearings. Form in place.



The roof goes on above the finished walls.



Peters' wall, poured behind slatted forms.



Details of Peters' form for entire wall.

Upright 2 x 4 inch studs, long enough to reach the top of the wall, are spaced at four feet intervals along the length of the wall to be built.

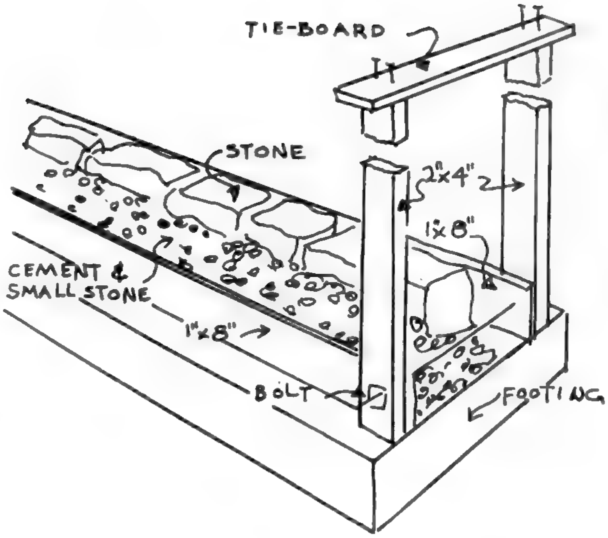
To make **form 1,** which can be completely dismantled, a 1 x 8 inch plank is nailed to the **inside** of the bottom of the 2 x 4s, against the **flat** side (see diagram). One is made for the inside wall and another for the outside.

The form is made by joining the two frames with 18-inch long bolts, ½-inch in diameter, linked through holes drilled through the planks and the uprights one inch up from the bottom edge of the plank. The bolts are secured by nuts.

Make sure the uprights are plumb and secure them with tie boards, which can be any kind of board nailed in place.

As in the Flagg system, stones are placed flat against the outside form board on a thin layer of cement, then the space behind is filled up to the inside form board with smaller stone and cement.

When built to the top of the board, another plank is simply rested on the bottom one, inside the uprights. Board by board you work up until the wall is finished. When the last layer of stone and cement has set, you loosen the tie boards, take out the nuts and bolts and remove the form, leaving a one foot thick wall, a straight line of stone outside and a straight wall of concrete inside.

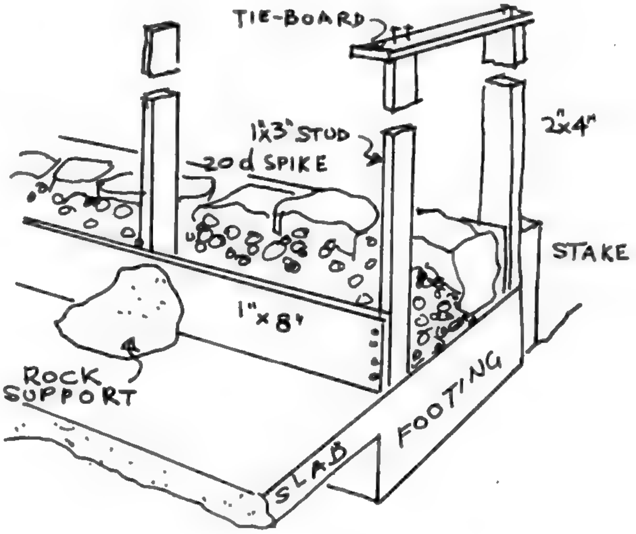


Paul Corey's Form 1.

"A stone wall built with forms goes up relatively quickly," says Paul Corey. "I have built as much as 40 square feet a day, working completely alone, mixing cement, carrying stone and laying wall."

In Corey's **form 2,** the outside wall frame is built similarly, but no bolt holes are needed. The inside frame is of rough 1 x 3 inch uprights, creosoted and spaced at 16 or 24 inch intervals. They remain fixed to the inside wall as in the Flagg system and may be used as furring strips to attach plaster laths or timber.

The first form plank is nailed to the **edge** of the 1 x 3s. The uprights are held by tie boards as in form 1. Planks are nailed to the outside of the inside wall studs and may be pried off and moved up as building goes on.



Corey's Form 2.

Some pointers in mosaic rubble building.

Don't use thin rocks or slates, which may split.

Windows and doors can be bought from demolition yards and fixed in place. Build special forms to go around them, or build stone around the fittings.

A sticky cement mix is best.

Your wall can be a creative mosaic of different types and colours of stone. Use any shapes and textures you like, but wedged, squarish rock is best — round cobbles and stones will work loose in time by weather action.

Tools needed are trowel, level, plumb bob, wire, hammer, nails, bolster and rock hammer, guts, imagination and hard work.

Floors can be finished with slate, flagstone, ceramic tiles or timber. The mosaic technique is ideal for fireplace, chimneys and feature walls.

Build a strong scaffold for work above four feet high.

Don't build too high a wall section at any one time — the forms won't be able to take the weight. About two feet is the maximum height before allowing the wall to set and moving higher.

For a strong wall, place each stone course across the cracks of the course below and stones across the mortar joints in the next course up, and so on. One technique of pointing up is to squeeze fine stone chips into the mortar joints in the outside wall.

Good luck. Let's know how you built your house of stone.

Form illustrations from Ken Kern's The Owner-Built Home.

Sources

Small Homes, Their Economic Design and Construction, Ernest Flagg, New York, 1921, 204 pp.

Living The Good Life, How to Live Sanely and Simply in a Troubled World, Helen and Scott Nearing, Schocken Books, New York, 1971, 213 pp. In most bookshops.

Pour Yourself a House, Low-cost Building with Concrete and Stone, Frazier Forman Peters, Whittlesey House (McGraw-Hill Book Co Inc), New York, 1949, 217 pp. Library.

Homemade Homes, Paul Corey, William Sloane Associates, New York, 1950, 309 pp. Library.

The owner-built home

The Owner-Built Home is "about the most useful book on building available", Lloyd Kahn said in The Last Whole Earth Catalog.

This is a book you must have if you are thinking of building yourself a house. Ken Kern says in his introduction that he intended it to be a "how-to-think-it as well as a how-to-do-it book" and it succeeds on both levels.

Apart from this, there is the author's unique offer of both The Owner-Built Home and a personal preliminary house design for $US10. The plans are tailored to your own requirements for space, site, climate and facilities

The book fully covers the design and techniques, planning, cost and labour needed in building a wide variety of homes, mainly using native materials. These include rammed earth, earth block, masonry, wood, salvage materials and stone.

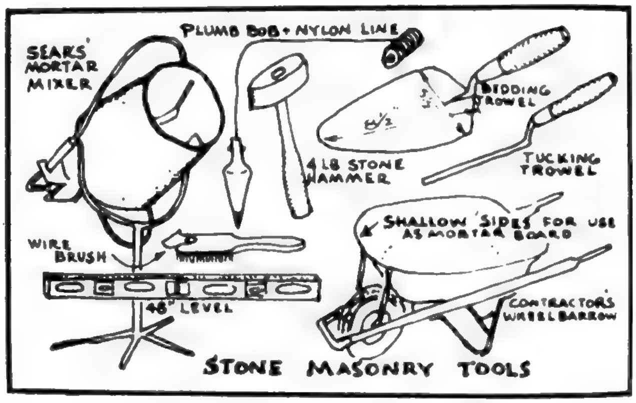
This is followed up by details on roofing, foundations, walls, plumbing, wiring and lighting, painting, solar heat, squat toilets, sauna baths and group living spaces. The emphasis is heavily on planning, thinking through the problems, selecting the best methods and materials.

Any page of Ken Kern's book will tell you something — or at least solve a problem. Usually it will inspire you, make you wonder why we're all living in badly-functioning boxes and not in structures which are extensions of ourselves and revolve around our needs.

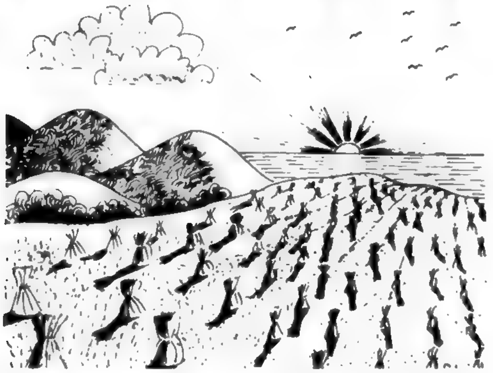
Ken Kern on stone: "The apperance of your dwelling should not be underestimated when choosing a building stone. Every rock has its unique colour and rock of different colour can be mixed in a wall. Every rock also has its unique lustre, be it vitreous, pearly, resinous, dull, metallic or whatever. Rock containing much iron should be avoided, since stains caused by oxidation or iron under atmospheric influence will discolour the mortar".

The Owner-Built Home, Ken Kern, Oakhurst, California, 1972 (first printed 1961), 297 pp. Price $US5 or $US10 with preliminary house design, from Ken Kern Drafting, Sierra Route, Oakhurst, California 93644, USA.

Book only: $A5, plus 30 cents postage from: Readings Bookshop, 388 Lygon Street, Carlton, Victoria, 3053.



notes on oats



Oats are one cereal well suited to the harsher climate of the more southerly parts of Australia and New Zealand.

The humble oat (Avena Sativa) has long been the principal grain food of Scotland and cold Northern Europe, needing less sunshine and warmth than wheat and being less exacting in soil requirements than other cereals with the exception of rye.

High in protein and fat content, oats are an excellent source of vitamin A and contain a useful amount of vitamin E.

In common with all grains they are a balanced food and capable of sustaining life for an indefinite period. It is said that in the English-Scottish border forays of the 12th and 13th centuries, the only provision carried by the Scots was simply a bag of oatmeal.

It cannot be made into a light bread and so is used more often for oatcakes, bannocks, brose or more popularly porridge ... "The halesome parritch, chief of Scotia's food" as Burns once said. Some say the only way to eat it is with the addition of salt only; others that it should be served with individual bowls of cream into which you dip each spoonful.

PORRIDGE

1 cup oat flakes
3 cups water
Pinch sea salt

To fast bubbling water add the salt, then sprinkle the oatflakes lightly into the water so that each one falls separately. Stir with a wooden spoon till the porridge thickens; put on the lid and simmer for 15 minutes.

Left over porridge incorporated into bread dough will yield a more textured loaf. Or used as a quick thickener for soups, oats turn a simple broth into a creamy fuller tasting soup. Or try this oat-cream soup:

SOUP OF OAT FLAKES

4 onions cut into small moons
1 cup oat flakes, slightly roasted
Sea salt
1 tablespoon corn oil
Tamari Soy Sauce

Heat the oil in a frying pan, cook the onions in the oil over a high flame for 3-5 minutes, stirring, and over a low flame for 8-10 minutes. Pour the onions/flakes and salt into six to eight cups of boiling water; stir. Cook on a low flame for 20-25 minutes. Add soy sauce before serving. Stir again.

SKIRLIE

3 large onions
3 tablespoons vegetable oil
Oatmeal

Chop the onions finely and saute in the oil until brown. Add enough oatmeal to absorb all the oil and make quite a thick mixture. Add half a cup of water and stir till the mixture thickens again.

KAIL BROSE

Allow two tablespoons of oatmeal per person and one dessertspoon vegetable oil. Toast the oats in the oil and pour on boiling cabbage broth (the juice in which cabbage has been cooked) stirring rapidly until it thickens in the form of knots.

THURSO BROSE

Season toasted oatmeal with salt then stir in enough boiling water — flavoured with onion and cheese if liked — to make a porridge thick enough to stand a spoon in.

Notes on Oats is a recycled story reprinted from the Scottish magazine, Inside Out, and written by Pete & Rose, via the New Zealand alternative newspaper, MIDNIGHT RIDER, available for $1 Australian or 80 cents NZ for 10 issues. That's good value and especially worth it if you like music.

Ali, of MIDNIGHT RIDER, adds these points and another recipe:

The nutritive value of oats is similar in content and amount to whole wheat flour, oats being a good source of thiamine (vitamin B1 — anti Beri Beri factor), though the amount of thiamine varies according to soil, season and variety.

The fibrous husk is easily shed during milling, leaving the oat grain intact with germ and bran layer — thus our oats if steelcut or rolled are in the whole grain form.

With the high fat content germ present, oats should be stored in a cool dark airtight place to prevent rancid off flavours developing. Similarly wheatgerm and other undegerminated grains.

OATMEAL PANCAKES

¾ cup rolled oats
¾ cup milk
½ cup sifted flour
2 tsp baking powder
½ tsp salt
2-3 lb sugar
1 egg
2 lb melted butter

Pour the milk onto the uncooked rolled oats and leave to stand for 5 minutes. Meanwhile sift the flour, baking powder and salt into a medium-sized mixing bowl. Add the sugar and egg to the milk mixture, beat with a fork to mix. Melt the butter. Pour the oat-milk mixture and butter into the dry ingredients. Stir until mixed but not smooth. Proceed as for plain pancakes.

MIDNIGHT RIDER/INSIDE OUT

In 1971 Brian Peacock and Dave Edwards moved into an old disused bakery in Greville Street, Prahran and opened the Feedwell Foundry to bake wholemeal breads and cake using organic stoneground flours and an old-style wood-fired oven. (See EG5).

Later their activities expanded into the shop next door, which became Feedwell Foods, a health shop which sells a large range of organically grown grains, nuts, dried fruits, beans and other foodstuffs.

Feedwell Foods has become the major retail outlet for organic, traditional macrobiotic foods imported from Japan and also wholesales these goods to other stores and restaurants throughout Australia.

For those interested in a macrobiotic diet, ample supplies of miso, tamari soy sauce, kuzu, wholewheat and buckwheat noodles, mu tea and bancha tea are available from Feedwell Food Imports, 120 Greville Street, Prahran, Victoria, 3181.

For further information and a price list please send a stamped envelope.

In Sydney, expertly prepared macrobiotic cuisine is available at the Sennin Restaurant, Oxford Street, Bondi Junction or the Vegetarian Restaurant, Evans Street, Rozelle (formerly Two Little Fishes).

BY ROMAN BLACK

The term macrobiotics was coined by George Ohsawa and is derived from the Greek: macro means great, bio means vitality or life and biotics, the technique of rejuvenation.

In practice macrobiotics is a modern application of traditional Japanese culinary arts. It is a method of food preparation with higher goals than just simple health.

It is a cooking method founded on a total philosophy representing hundreds of years of Eastern and Western thought. The ancient Zen philosophy is its backbone.

The basic ideas of macrobiotics can be applied to any race in any country. The principles, when applied to food and drink, result in a diet that is inexpensive, with a great deal of variety, delicious to eat, and simple to prepare.

Perhaps the strongest single principle behind macrobiotic philosophy is that it means choosing and eating foods grown within approximately a 500 mile radius of one's home and living in accord with one's immediate environment.

In other words, it stresses living in accord with nature and involves eating with a purpose by selecting foods best suited to our daily activities, nutritional and biological needs, our climate, and our general well-being.

In this sense, the principles of macrobiotics take all of life into consideration to ensure the best possible diet for everyone's particular needs. Rather than being a "miracle diet" it is a well-structured set of principles that lay the groundwork for health.

Basically macrobiotic foods are those which have been produced without use of artificial fertilizers and preservatives and which are still whole ie unprocessed in any way.

Thus the range of foods is enormous but at the same time a great deal different from the standard Australian fare of sugar, tinned, processed and artificial foods, and a multitude of animal products (cheese, butter, various meats from different parts of different animals: none of these are WHOLE foods. For instance a sardine, bones and all, is a whole food; fruit juice is not, it's only part of the whole fruit).

The idea of eating foods in a whole, natural state has almost completely

macrobiotics

vanished from modern day understanding of food. Eating only part of an apple, a carrot, or a grain of rice, and discarding the rest robs us of the full value of our food. It is also ecologically wasteful.

Grains are the most perfectly balanced foods when eaten whole. The outer layers of a grain contain minerals and vitamins, while the inner core is made up mostly of carbohydrates.

Since the outer layer aids in digesting the carbohydrate, milling and further processing of grain removes this necessary substance and an incomplete food results.

In macrobiotics the idea is to use foods in roughly the same proportions as they are found in nature, and to use them in the most natural state possible. In temperate climates where grains are the most abundant foods, and are native to the terrain, they should make up a large proportion of our diet. Grains are the staples of the macrobiotic diet.

As mentioned before macrobiotics is a product of the Zen philosophy an explanation of which would take more space than this magazine would permit.

However in context with the intentions of EARTH GARDEN it may be said that macrobiotics is a **practical** solution to the individual who wishes to be in harmony with all.

Immediate benefits for those who practice the macrobiotic way are weight loss (or attainment of your natural weight), more energy, and generally more positive feelings.

A vast number of more subtle changes will continue to surprise you for years. And the longer you continue with the diet, the more your appetite for everything in life will change and grow, as your body and mind adjust to physical and spiritual harmony.

Oriental philosophy believes that there can be no theoretical discussions — only practical ones. So if you are interested in investigating macrobiotics and testing it for yourself try to obtain any of these books:

On general release: Macrobiotic Cooking, Eunice Farmilant (Signet). Especially good for beginners.

Zen Macrobiotic Cooking, Michel Abehsera (Avon).

Cooking for Life, Michel Abehsera (Avon).

Imported: Zen Macrobiotics, Book of Judgement, Guidebook for Living, all by George Ohsawa, the founder of modern macrobiotics.

The Do Of Cooking, (Ryorido) Vol 1 & 2, (The George Ohsawa Foundation Inc).

These may be found in Theosophical bookshops and the very best of the US import book stores, or write: George Ohsawa Macrobiotic Foundation, 1471-10th Avenue, San Francisco, California 94122, USA.

diet

BY DAVID A. EDWARDS

Cereals are used as "principle foods". They can be eaten daily and at every meal. They form the foundations of macrobiotic eating. They are the basis around which a meal is formed, about 60 per cent of food served.

Vegetables are used to supplement the cereals in the many varied ways of preparation.

Fish is used in small amounts occasionally as side dishes.

Dairy Products, Fruits and Miscellaneous are used in successively smaller amounts and much less often.

Animal Products are used temporarily in changing to this diet, and are phased out as the body becomes more subtle in its constitution.

All drinks are to be used in the smallest quantity of all, if possible only half a pint per day. As cooked cereals are water saturated there is no danger of dehydration. The less liquid in the stomach the more concentrated the gastric juices. Consequently the food is digested faster and more thoroughly. The digestive system is extremely sensitive and cannot be abused like a gully trap or sewerage system.

The actual amount of each food type to eat is entirely up to the individual to assess. Everybody is different. The aim is to adjust your diet until slowly your body begins to acknowledge which types are best suited. Eventually you are able to "feel" what you need. It takes seven years to eliminate **all** the toxins and poisons that have accumulated throughout your body, by eating pure foods. So do not expect miracles overnight.

Chewing your food is the most important thing. You can eat as much as you like if you chew each mouthful 50 times. Drink your foods and chew your drink. Chewing brings out the taste in the food, it also enables it to be digested faster and more efficiently, thereby extracting maximum nutrition out of the food, your body feels lighter.

Seven Day Brown Rice Diet is sometimes used by people converting to macrobiotics, as a means of cleansing the body. It consists of eating rice for seven days without any other type of food. And like fasting, it must be done with great care. People tend to abuse this diet, and continue after seven days because they feel so good. Unfortunately toxins and poisons are slowly being released from the internal organs and the body cannot eliminate them fast enough, causing complications and illnesses.

Therefore this diet should be followed by people in good shape and with care. People wanting fast purification of body can use this diet interspersed with a few weeks of normal macro eating.

yin and yang

YIN AND YANG: According to Zen Philosophy there is nothing but Yin and Yang in this world. They are centrifugal (outward) and centripetal (inward) forces respectively.

Yin is expansive, it produces silence, calmness, cold and darkness.

Yang is constrictive and produces sound, action, heat and light.

Biologically and Physiologically speaking:

Yin is vegetable, salad, female, sweet, tropical, Vitamin C.

Yang is animal, cereal, male, bitter, frigid, Vitamin A D K.

Applied to food we have the table tabulated from Yin* to Yang+; the aim is to achieve a balance of 7 parts Yin to 1 part Yang. This is a difficult task as there are many things to take into consideration and the table is a rough guide only.

All cereals are Yang compared with vegetables.

All vegetables are Yang compared with dairy products.

All dairy products are Yang compared with fruit.

All animal products are Yang compared with cereals.

TABLE OF FOODS LISTED IN ORDER FROM YIN* TO YANG +

1. CEREALS
*corn
rye
barley
oats
cracked wheat
wheat
millet
+rice (whole, brown)
++buckwheat

2. VEGETABLES
***eggplant
tomato
sweet potato
potato
shitake (Jap. mushroom)
pimento
beans (except aduki)
cucumber
asparagus
spinach
bamboo sprout
artichoke
mushroom
**greenpea
celery
lentil
*purple cabbage
beet
white cabbage
*dandelion (leaf and stem)
lettuce
endive
kale
radish
garlic
onion
parsley
++Hokkaido pumpkin
carrot
coltsfoot
burdock
cress
watercress
dandelion (root)
+++jinenjo (Jap. potato)

3. FISH
*oyster
clam
octopus
eel
carp
moule
halibut
lobster
trout
sole
+salmon
shrimp
herring
sardine
red snapper (tail)
++caviar

4. ANIMAL PRODUCTS
** snail
frog
pork
beef
horsemeat
hare
*chicken
+pigeon
partridge
duck
turkey
++egg
+++pheasant

5. DAIRY PRODUCTS
***yoghurt
sour cream
sweet cream
cream cheese
butter
**milk
camembert
gruyere
+roquefort
Edam cheese (Dutch)
++goat milk

6. FRUITS
***pineapple
papaya
mango
grapefruit
orange
banana
fig
pear
**peach
lime
melon
almond
peanut
cashew
**hazel nut
*olive
+strawberry
chestnut
cherry
++apple

7. MISCELLANEOUS
***honey
molasses
margarine
**coconut oil
peanut oil
corn oil
olive oil
*sunflower oil
sesame oil
corza oil
safflower oil
Egoma oil
(made from most Yang sesame seeds)

8. BEVERAGES
***Those containing sugar substitutes
tea (containing dye)
coffee
fruit juice
all sugared drinks
champagne
wine
**beer
*mineral water
soda (carbonated water)
water (deep well)
thyme
menthol
+armoise (mugwort, yomogi)
bancha (undyed Jap. tea)
chicory
Ohsawa coffee (yannoh)
kokkoh (creamed blended cereal)
++mu tea
haru tea
dragon tea
yang yang tea
+++ginseng root

zen FOOD

MISO (Soybean Paste)

Miso is a naturally fermented, easily digestible, high protein food. Its basic ingredients are soybeans, salt, water and a bacterial fermenting agent called koji. As the salty solution ferments and breaks down it produces many beneficial salt-resistant bacteria and enzymes which greatly aid digestive processes and therefore promote health. For this reason it is best not to boil miso as this can destroy many of these helpful bacteria and decrease its wonderful life-giving qualities. Miso's uses are as bountiful as your own imagination and range from the traditional miso soup to sauces, spreads, vegetable stuffings, salad dressings and many others.

TAMARI SOY SAUCE

Although using a different process, Tamari is also a koji-fermented product made of soybeans, grain (wheat or barley), salt and water. Pressed from the mash after ageing in wooden kegs for about eighteen months, Tamari has a taste and quality that cannot be equalled by modern chemical production methods. This superb sauce should in no way be confused with the commercially produced soy sauces Australians are used to using, which contain many harmful chemicals and flavouring agents.

SEITAN

Wheat gluten, high protein extract from whole wheat flour is cooked with Tamari to make a 'beefy' taste and texture. Excellent added to soups and sauteed vegetables.

TEKKA

Tekka is a vegetable miso condiment. Used daily in small quantities it is very helpful for strengthening iron deficient blood. It is made from burdock and lotus roots, carrots, sesame oil, miso and ginger. Cooked until almost dry and granular, it makes a nutritious and delicious condiment for sprinkling on rice.

UMEBOSHI (Salted Plums)

Our umeboshi come from a large organically fertilized orchard in Kishu, Japan. The plums undergo a special pickling process for almost two years and emerge as the food traditionally used in Japan for its digestive benefits and other beneficial qualities.

SEA PRODUCTS

HIZIKI

A sea vegetable rich in trace minerals. A delicious side dish for rice or sandwich filling. It is well known in Japan for its relation to the strengthening and promotion of elasticity of the skin.

WAKAME

Harvested in the clean waters of the Japan Sea and rich in calcium, this succulent sea vegetable is particularly suited for use in miso soup, salads and vinegar dishes.

KOMBU

A member of the kelp family, Kombu is gathered in Japan's cold northern waters. Known as a cleaner of the blood vessels and arteries, in Japan it has also traditionally been said to promote the people's strong, black hair with its healthy sheen. It may be used as a soup stock or cooked with Tamari to make a condiment or as a wrapping for carrots and other vegetables to make decorative side dishes.

NORI

Whispy sea laver is dried into thin sheets. Cut or torn into small pieces, this makes a decorative and tasty garnish for noodle dishes and entrees. It is also used as is, or lightly toasted, for wrapping rice balls and sweet rice cakes.

MU TEA

A refreshing, aromatic, and health promoting beverage made by a unique and careful blending of various herbs. We handle two kinds, a 9 herb and a 16 herb mixture. Peony root, hoelen, cinnamon, licorice, peach kernels, ginger root, Japanese ginseng and rehmannia create No 9 mu tea. Cnidium, atractylis, cypenus, cloves, coptis, moutan and mandarin orange peel are added to produce No 16 tea.

GREEN TEA

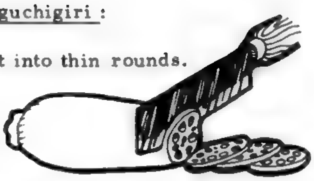
Japanese Green Tea is famous throughout the world for its refreshing, slightly bitter taste and stimulating quality. This is a medium young leaf tea, picked in the second Spring, and dried naturally without dyes.

BANCHA (Three Year Tea)

A mild, soothing tea made from only those leaves on the bush more than

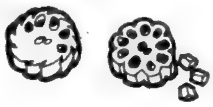
Koguchigiri :

Cut into thin rounds.



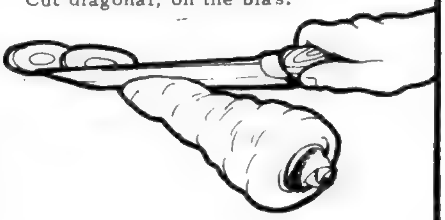
Koguchigiri Flower :

Cut into thin rounds; then cut small wedges.



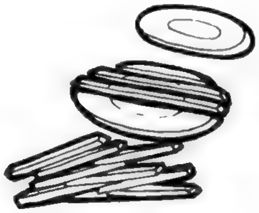
Hasugiri :

Cut diagonal; on the bias.



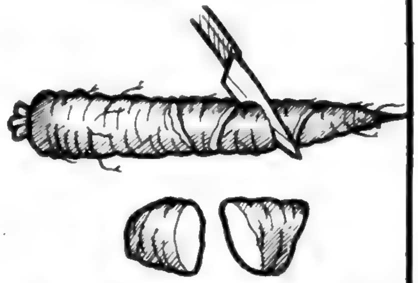
Sengiri :

Cut each bias section into match-stick size pieces.



Rangiri :

Cut large diagonal wedges;



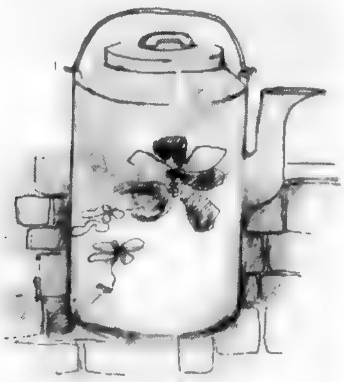
These illustrations are from The Do of Cooking, a fine guide to macrobiotics for Westerners, with recipes.

The Do of Cooking (Ryorido), The George Ohsawa Macrobiotic Foundation, Inc, San Francisco, 1972, 108pp. Our copy of Vol 1 cost $2.24 at The Source, Manchester Lane off Collins Street, Melbourne.

3 years old and tea twigs, lightly roasted to produce a mellow taste without the stringent taste and stimulant quality characteristic of tea made from young leaves. For the most delicious results this tea is brewed by plunging the leaves and twigs into boiling water then letting them boil slowly for about 5 minutes. It is also a fine eyewash for tired eyes and, when drunk with a dash of Tamari and an umeboshi plum, helps revive one when fatigued.

LOTUS ROOT TEA

Is made from drying the tubers of the lotus root and lightly roasting them before grinding with a little salt and ginger. A good tea for coughs and bronchitis.



KOKKOH

Brown rice, brown sweet rice and light sesame seeds are roasted until they become a light fox brown, then ground into flour. Mixed with water and gently cooked, this product makes a delicious and easily digestible cereal. Particularly good as a baby food or meal for the sick.

NOODLES (Udon and Soba)

Our udon is 4 parts whole wheat, 1 part sifted unbleached white flour (for adhesion). Delicious in Tamari or miso soups or when fried with vegetables.

A larger proportion or unbleached white flour is used in the soba (buckwheat noodles) because the adhesive quality of buckwheat is not great. However, our Soba contains the highest quantity of buckwheat that can be efficiently used in a dry noodle. Soba is excellent in broth soups, or served cold in summer.

We carry a full line of udon and soba:

Muso Soba — richest in buckwheat flour (40%) top class soba.

Kame Soba — a longer noodle, slightly less % of buckwheat flour than Muso Soba.

Ito Soba — a very thin, light noodle.

Shokuyo Udon — a sturdy whole wheat noodle.

AZUKI BEANS

These dark red beans are traditionally considered to be good for the kidneys. They can be cooked by themselves, with kombu and squash, or mixed with rice for an attractive and delicious meal. Cooked with a natural sweetener they make a tasty pudding or filling for various pastries.

KUZU (Wild Arrowroot Starch)

Kuzu starch is extracted from wild mountain kuzu root. It is easily prepared by first diluting in cool water, then cooking over a low heat until its milky colour becomes clear. With a little Tamari, umeboshi and ginger it makes a good remedy for colds, fatigue and digestive disorders. It is used in cooking as a gelatine-like agent.

DENTEE TOOTHPOWDER

Those who are not already users of dentee may be surprised by the black colour of this toothpowder. But after they try it they will realise its other unique qualities besides its colour.

Made by pickling the end of the eggplant nearest the stem in salt for a year, then roasting it until it becomes charcoal, it is ground into a fine powder. This toothpowder leaves the mouth clean and refreshed. It is also excellent as a gargle, when applied to sore gums, as a dressing for minor cuts and scrapes, and has many other hygienic uses.

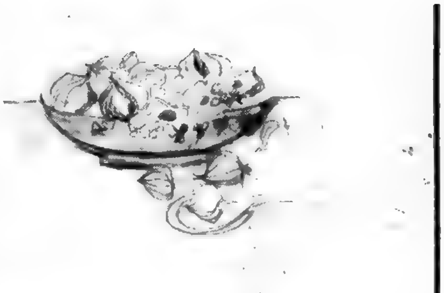
SENGIRI DAIKON

The daikon radish, which is dried and shredded, keeps all year round, and after soaking in water makes a tasty side dish, cooked or uncooked.

PICKLED DAIKON

Whole Daikon radishes are dried in the winter season then pickled in sea water for two years. Without any preservatives they are loved by the Japanese people for their taste and as an aid to digestion, and eaten after most meals in Japan.

(All these imported foods are available from Feedwell Food Imports).



MISO SOUP (for six persons):

Miso soup is inseparable from traditional Japanese life. Miso is a pasty seasoning made from fermented soybeans and malted wheat; various kinds are made in Japan, depending on the locality.

A wide variety of miso soup can be made by putting different ingredients together. In winter macrobiotic friends cook it at least twice a week. If you feel weak here is your pep pill!

- **2 onions, small, finely chopped**
- **3 carrots, finely chopped**
- **2 strips dried wakame**
- **3 or 4 cabbage leaves**
- **6 to 8 cups boiling water**
- **1½ tablespoons miso**
- **1 tablespoon corn oil**

Saute the vegetables in the corn oil: 5 minutes over high flame, then 5 minutes over low flame. Pour the sauteed vegetables into the boiling water. Add in sliced wakame. Add the miso, diluted in half a cup of water. Cook over low flame for 15 minutes. You may add cooked whole wheat noodles just before the end.

Michel Abehsera has a background of North African and French cooking and a sharp appreciation of Jewish food. When mixed with macrobiotic recipes, the results are cosmopolitan and delicious.

So in his book, Zen Macrobiotic Cooking, you get a gentle introduction to Zen food and the recipes include exotics such as couscous rice, cresson sur canape (watercress on the couch), la belle jardiniere, green road lined with brown and yellow trees, chou farci (stuffed cabbage) and more expected dishes such as miso soup (above), tempura, nituki, koikoku and aduki rice.

"Leave all unhappy thoughts at the door of your kitchen," Michel Abehsera suggests. We recommend that you keep this book on your kitchen shelf to ensure happy cooking and eating.

Zen Macrobiotic Cooking, Michel Abehsera, Avon Books, New York, 1968, 223pp. Price about $1.25.

The Ex-Urbanite's Complete & Illustrated Easy-Does-It, First-Time Farmer's Guide, Bill Kaysing, Straight Arrow Books, San Francisco, 1973, 319 pp.

"Getting back to the land has many advantages," says Bill Kaysing in the introduction to First-Time Farmer's Guide. "First there is fresh air and pure water to ensure your health. Then there's the green softness so necessary to the spirit. More mundane but important, it costs less to live."

First-Time Farmer's Guide, as the title suggests, is a true access book, a turn-on for all those wanting to make the move from the city to natural living in the country. It tells you how to begin and how to continue and is more of a 'how-to-find-out' than a 'how-to-do-it' book.

The style is friendly, simple and infectious. We identified with it immediately, and with the motif of the medieval crop sower — wish we'd seen him first!

The information is rich and varied. It takes you through locating your land, finding water, making your own compost, seeds and stock, tools, your first vegetable garden, fruit, grains, livestock, pest controls, farm lore, building and sources. There are valuable hints on fish farming, roadside stalls and marketing of speciality crops.

"On a farm every day can be a delight," says Bill Kaysing. First-Time Farmer's Guide could show the way to new delights for many Australians.

> EXTRACT: Sunflower Seeds.
>
> The value of sunflower seeds as a food has been known for many centuries by canny peasants. In Russia 12½ million acres are being cultivated exclusively in sunflowers. In short, more and more people throughout the world are becoming aware of the tremendous value of sunflower seeds as a really good food. Fortunately, sunflowers are as easy to grow as a weed. They are hardy plants that will do well almost anywhere. Plant them as an entire field and have the fun of watching their big, round, yellow moon faces swinging in unison from East to West. Plant them as a border around your flower garden or vegetable plot. Plant them as a living bean pole by putting a seed or two next to every climbing bean. The sunflower will beat the bean into the air and the bean can intertwine itself around the strong sunflower stalk.

Our review copy from: Bookmasters, 710 Glenferrie Road, Hawthorn, Melbourne and 87 Grenfell Street, Adelaide. Cost $3.95. Postage would be about 30 cents.

Grow It!

GROW IT! The Beginner's Complete In-Harmony-With-Nature Small Farm Guide, Richard Langer, Avon Books, 1973, 365pp. Price: $3.95. Our copy from Whole Earth Bookshop, 81 Bourke Street, Melbourne, Victoria, 2000. (Add 30 cents for postage).

Grow It! has a wide scope 'from vegetable and grain growing to livestock care'. Richard Langer sees it as, variously 'a roadmap, a handbook for survival on the farm' and 'a boy scout manual' for those planning the return to the land.

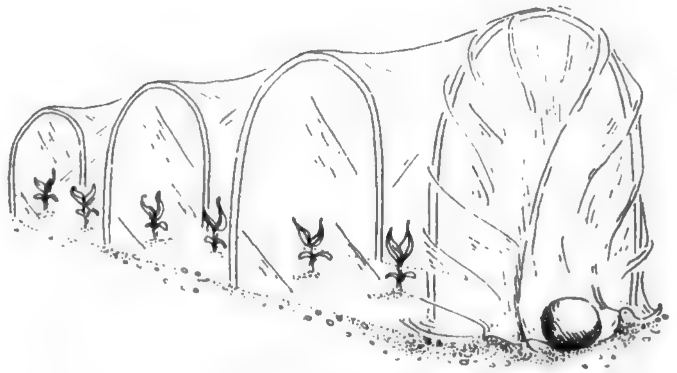
This is one of many guides for the new agricultural peasants and should answer many questions asked by ex-urbanites in the country.

There are good chapters on fish ponds, establishing woodlands, machine ploughing, tilling and harrowing, compost and mulch, fruit, nuts, pastures and food storage. Small farm, rather than small homestead, is the emphasis.

The book's attempt to cover many subjects is its weakness. The goat chapter has recently been criticised by Judith Kapture, of Countryside, a lady who really knows her goats. Langer does seem to have an excessive 'cleanliness' hangup. We don't agree that goats should have pens with concrete floors and a daily hosing is more likely to be a health hazard than a help for them. You might give that section a miss as the milking equipment, cooling devices etc, just aren't necessary and the information is misleading.

We don't really think fowls need curtains across their laying nests either. However, the chapters on bees, pigs, chickens and other poultry are better. You must just decide first whether you are going to be a commercial farmer with a flock of thousands, or whether you just want a few eggs on the plate for breakfast.

But we still think this is a very good book — and who are we to criticise someone who's trying to do too much at one time. Everyone could learn something from Grow It! As Richard Langer says: "Today one small, well-kept farm, even of only a couple of acres, is worth a thousand cars spilling off the General Motors assembly line".



CLOCHE GARDENING USING PLASTIC SHEETING
WEIGHTED WITH ROCK

septic gas

A septic tank installation is put over to Methane production as follows:

First it may be wise to divert the outflow from wash basins, bath tubs and the like elsewhere if they now drain into the tank of your "domestic manure".

Nothing which comes from these sources is useful, and will often inhibit gas production since detergents and bleaches go that way.

Only two major changes are made in the tank itself. Any vents must be blocked off securely so that only one exit remains to be used as a gas outflow. And then heat will be applied to the contents by sinking a heating element — electric power — which is thermostat-controlled.

The diagram shows a small concrete septic tank (at right) partially sunk into the earth on a typical slope. On the extreme right is the sewage inflow pipe fitted with a gas-tight hinged cap which opens only when pushed against by liquid from the house (shown in detail below).

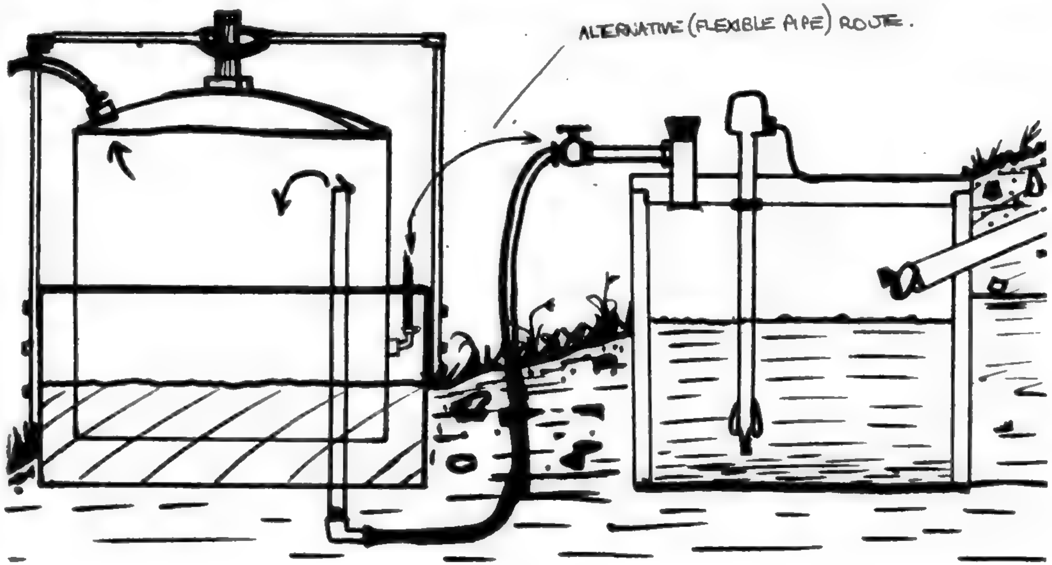
Inserted as far down into the sewage — now the digest — as possible is a thermostat-controlled domestic water heater fitted through a rubber stopper. On the left of the tank lid is the vent pipe, now stoppered gas-tight and fitted with a gas cap extension to become the Methane outlet.

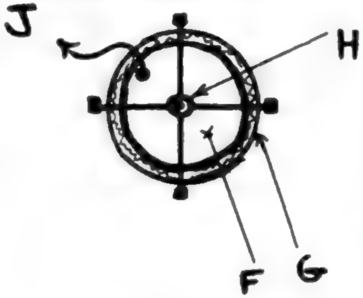
The piping connecting this to the storage tank is semi-flexible water supply quality of the type in common use on farms. This is buried to join a vertical steep pipe which runs upwards into the gas storage area.

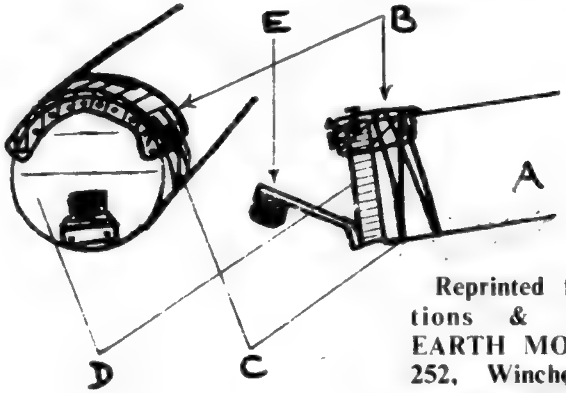
The gasholder is simply two tanks—one inverted and floated into the other. The lower (water) tank may be cheap plastic type, or built of brick. The upper tank will be steel by preference and heavier.

The upper tank moves up and down according to the amount of gas it is holding . . . and is held roughly in position by (for example) a tubular steel framework holding a restricting ring in a central position above the tank.

A length of pipe fixed to the roof of the upper tank remains inside the ring at all times. The final gas outflow, which is now under moderate pressure (heavier tank — more pressure) — is taken off via a further length of flexible tube. The end of this run can be a fixed "power point" to which any number of appliances can be connected as needed, or it could be an electric generator in permanent use.







SEWAGE INFLOW HINGED CAP

A. Sewage pipe.

B. Leather on rubber hinge nailed or screwed to a sealing disc. This can be of any material, but is usually wooden — rather like a bread-cutting board. On the sewage pipe side trace a circle in rubber compound to the size of the pipe.

C. Crude but easy and effective: Steel wire binds the flexible hinge to the pipe.

D. The sealing disc — slightly larger diameter than the pipe.

E. A weight fitted on an extension arm at roughly the angle shown. This closes the disc sealer whenever outflow pressure ends.

BIRD'S EYE VIEW OF GASHOLDER

F. Inner (upper) tank.

G. Outer (lower) tank.

H. Restraining ring supported by scaffold.

J. Flexible pipe gas outflow from roof of upper tank.

Reprinted from: Instructions & Information, EARTH MOVE, PO Box 252, Winchester, Massachusetts 0 1890; USA.

Alternatives to petrol

Petrol (or gasoline) may not be the dominant vehicle fuel by the turn of the century.

Several exciting alternatives to petrol power have emerged since the so-called "energy crisis" finally helped to convince the world that we will one day run out of fossil fuels.

The gas fuels, in particular, offer an immediately available substitute which is cheaper than petrol, which is more efficient, extends engine life and reduces air pollution to a minimum.

Other non-polluting fuels now being looked at by scientists include hydrogen and oxygen mixtures, solar and electric power and the alcohol fuels — methanol and ethanol.

Old solutions which proved useful in the past, such as steam power and wood gas burners (gengas), are being dusted off and examined once more in the light of possible new methods of use.

LIQUEFIED PETROLEUM GAS (LPG)

The gas fuels presently available are LPG (liquefied petroleum gas), a mixture of gases, mainly propane, but with some butane; and natural gas, which is mainly methane. Methane manufactured from sewage and organic wastes (dealt with in EG8) has the same potential and one day may be commercially available.

LPG is commonly sold under such trade names as "Porta-Gas", "Calor-Gas", "Gaz" and (previously) "Shellgas". It is used to power cooking stoves, lights and heaters. It is a by-product of petrol refining ... each barrel of oil contains about two per cent LPG.

With LPG the emission of poisonous carbon monoxide (CO) in car exhausts is cut drastically. This makes LPG powered vehicles safe to use indoors and in confined spaces such as tunnels.

Fork-lift trucks in Australian factories have been using gas power for this reason for many years. It has been estimated that 64 per cent of all air pollution is caused by motor vehicles. Gas fuel advocates in the United States say that smog would be reduced by as much as 90 per cent if all vehicles were fuelled by LPG.

LPG is very similar to petrol in its chemical nature. Both consist of a mixture of compounds made up of hydrogen and carbon (hydrocarbons) derived from petroleum sources. LPG is more volatile. It boils or vaporizes at ordinary atmospheric temperatures.

It can be stored in steel tanks as a liquid under pressure and drawn off for use as a vapour.

COMPARISON OF PROPERTIES

	LPG	Motor Spirit
Octane rating	110	97
Boiling point	—44F	90-400F
Weight/gallons (lbs)	5.1	7.4
BTU/lb	21,500	21,200
BTU/gallon	110,000	154,000

WHAT'S WRONG WITH PETROL?

In a car engine it is impossible to provide the correct air-to-fuel mixture for complete combustion because of the wide variety of hydrocarbons in petrol — 5-12 carbon atoms.

As a result the exhaust gases contain:
UNBURNT HYDROCARBONS
CARBON MONOXIDE
SULPHUR OXIDES
NITROGEN OXIDES
SOLID PARTICLES

UNBURNT HYDROCARBONS combine in sunlight with NITROGEN OXIDES to form smog, which attacks mucous membranes and causes irritations in our eyes, nose and mouth — lowering resistance to respiratory diseases

CARBON MONOXIDE irreversibly replaces oxygen in the bloodstream. Even at low concentrations it can cause brain damage and death.

SULPHUR OXIDES are washed from the air by rain and — in combination — highly corrosive acids are formed. Sulphuric acid is one of these by-products and eats into almost everything, including metals.

SOLID PARTICLES can become lodged in lung tissue and contain tar-like substances known to be carcinogenic.

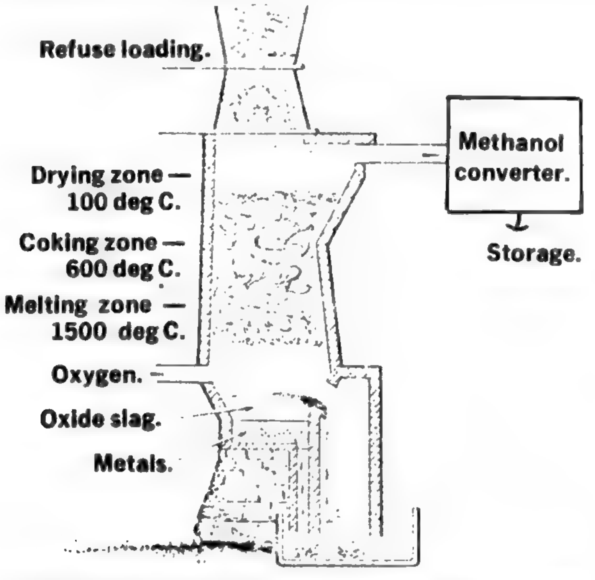
The most insidious pollutant in petrol is ADDED. This is lead. Lead is a cumulative poison of the central nervous system.

With LPG, carbon monoxide and oxides of sulphur and nitrogen are almost completely burnt and exhaust residues are low. Analysis of LPG and petrol has shown that with petrol as fuel, CO was emitted at the rate of 28 grammes per mile, but only at 2 gpm with LPG as fuel. Similarly nitrous oxide emission dropped from 4 gpm for petrol to 0.5 gpm with LPG.

Advantages of LPG for the average motorist are: lower fuel costs, longer engine life, smoother power, reduced oil changes.

This must be weighed against the high cost of a professional petrol-to-gas conversion job. Currently this ranges from $400-$600 and there are various types of sales tax. Only a few filling stations are in operation and these are separated by long distances.

The cost of conversion has kept many car owners on petrol and it is the reason why most LPG users are large vehicle fleet operators, such as Repco, TNT, Carlton and United Brewery, taxi fleets, buses and local councils.



Oxygen refuse converter, turns wastes into methanol.

The main advantage of LPG fuel at this stage is its apparent kindness to the atmosphere. However, we do intend to investigate the effects of LPG exhaust more thoroughly as it has been suggested that its emissions may have some undesirable aspects.

To sum up, LPG is a fossil fuel and therefore can be considered only as a short-term alternative. Currently the price is cheap, but it seems inevitable that excise tax will be imposed as a levy against the big truck fleets, which save about $1000 per truck per year on fuel bills.

NATURAL GAS (METHANE)

Natural gas produced in Australia contains varying amounts of methane (73-93 per cent), with minor fractions of ethane, propane, nitrogen and butane. This is the "town gas" which lights the Queensland city of Roma and which is piped ashore from BHP's offshore Gippsland Basin wells to become the Gas and Fuel Corporation's domestic fuel in Victoria.

Natural gas, therefore, is a fossil fuel, another incidental product of the search for petroleum. However, when it comes in the form of "home-made" methane gas it is probably the cheapest and best method of fuelling your "depolluted" car.

In North America a number of suppliers of natural gas for domestic purposes retail compressed natural gas (CNG) in varying sizes of tanks and varying pressures. These include Southern California Gas, Southern Counties Gas, Pacific Lighting Services, Quebec Natural Gas Corporation and The Consumers' Gas Company of Toronto.

We know of no plans to provide a similar service in Australia.

Those inflatable balloon-topped London taxis of World War II were running on domestic gas power — at that time coal gas. It is feasible that natural "town gas" could be similarly tapped for use as a fuel.

The drawback would be compression, or storage of natural gas at sufficient pressure to make it a practical fuel. It requires a pressure of 2500 psi to contain sufficient methane to give the same mileage you would get from a one gallon tank of petrol.

Liquefied natural gas (LNG) is being used by the San Diego Gas and Electric Co but this is still at the developmental stage.

A recent US patent by J. E. Anderson, describes an "oxygen refuse converter" that can dispose of waste and generate methanol (New York Times, April 21, 1973).

In a shaft furnace as shown in the diagram, unseparated rubbish or sewage sludge is fed into a hopper at the top. Low-cost oxygen is fed into this furnace near the bottom, creating a 1500 deg C zone that melts the metals and glass of the refuse.

All other products are gaseous or water soluble. Carbon, burning in the high-temperature zone, produces CO, which rises through the furnace. Other gases are H_2, CO_2 and CH_4. Because oxygen rather than air is used in burning, the output gas is high in heat content, low in volume and easy to scrub to remove fly ash and chlorine.

Converters of this type may also be used to convert farm and lumbering waste into more useful forms of energy such as methanol.

Tests with CNG showed emissions could be reduced up to 90 per cent. One vehicle tested at the California Air Resources Board laboratory in Los Angeles showed carbon monoxide emissions were reduced from 25.3 grammes per mile on petrol to 4.4 gpm on natural gas. Hydrocarbons were reduced from 8.9 to 0.3 gpm and oxides of nitrogen dropped from 5.0 to 0.6 gpm on natural gas.

As natural gas is lighter than air it will rise and dissipate in case of a leak. The ignition temperature (and explosive temperature!) is 4-500 degrees F higher than that of other vehicle fuels.

For further information, write for the booklet: Compressed Natural Gas Fuel System for Motor Vehicles Fact Sheet, published by The Consumers' Gas Co of Toronto, 19 Toronto Street, Toronto, Ontario, Canada. Send 25 cents International Reply coupon.

Further reading: Butane-Propane Power Manual, Principles of LPG carburetion, The Chiltern Co, Philadelphia, 1962, 315pp.

METHANOL

Methanol is a liquid, currently in use as a solvent and spirit fuel, and better known under the names methyl alcohol, wood alcohol or methylated spirit.

Methanol, CH_3OH, can be thought of as two molecules of hydrogen gas made liquid by one molecule of carbon monoxide. It can be made from almost any fuel — natural gas, petrol, coal, oil shale, wood and farm and municipal wastes.

A chief benefit of methanol as a fuel is that existing facilities such as storage tanks, tanker trucks, pipelines and service stations may still be used. Methanol is colourless, odourless, water soluble and burns with a clean blue flame. It has an octane rating of 106.

Dr T. B. Reed and Dr R. M. Lerner disclose in Science Vol 182, No 4119 (December 28, 1973) that up to 15 per cent of methanol may be added to petrol in commercial cars now in use without modifying their engines. Immediate benefits are improved economy, lower exhaust temperature, lower emissions and improved performance compared to the use of petrol alone.

A number of unmodified private cars (year models 1966 to 1972) were tested and operated using varying concentrations of between 5 to 30 per cent methanol added to petrol.

It was found that (1): fuel economy increased by 5 to 13 per cent; (2): CO emissions decreased by 14 to 72 per cent; (3): exhaust temperature decreased by 1 to 9 per cent; and (4): acceleration increased up to 7 per cent.

Cars may also be converted to run on pure methanol by changing the ratio of air to fuel consumed from about 14 for petrol to 6 for methanol by recycling more heat from the exhaust to the carburetor. Cost of this in the US is about $100.

Methanol may be the fuel of the future, made at home in methane digesters, if soft technology can find a simple way of converting methane to methanol by the oxidation of oxygen or water. A lot more research is obviously necessary.

In the short-term methanol may be of great benefit as an additive to petrol which, the authors point out, would bring about "an immediate reduction in atmospheric pollution ... less need for lead in fuel, and automobile performance would be improved".

Time will tell. Meanwhile, remember that methanol vapours are poisonous.

NRMA TESTS

Road tests by the NRMA in New South Wales showed that a Holden sedan performed better on LPG than on petrol. At the time the survey was made, petrol cost 46.1 cents a gallon. Since then, prices of both petrol and LPG have risen, but the comparison between the two would remain similar.

This is the text of the NRMA report:

Reduced engine wear and much less exhaust pollution are the two main advantages from a 14,000 mile test carried out by the NRMA with a car using liquid petroleum gas.

Another advantage was lower operating costs, due partly to the fact that there is no excise duty on LPG. Petrol carries excise duty (petrol tax) of 22.3 cents a gallon.

Disadvantages were the cost of converting the engine to run on LPG, and the space required to store the cylinders for the gas.

The car used by the NRMA in the test, a Holden sedan, was operated on petrol for about 15,000 miles. Then after the engine was stripped and examined, it was converted to use LPG.

After a further 14,000 miles on LPG, the engine was again dismantled and examined. An interim report was issued and subsequently the engine was reassembled and the car put back into use on LPG.

Measurements showed that wear on the crankshaft, bearings, cylinders, pistons and piston rings was negligible.

The dramatic reduction in the normal engine wear rate was due to the absence of raw petrol in the cylinders. This usually washes away lubricating oil and so promotes wearing of pistons, piston rings and cylinders. Raw petrol also contaminates the engine oil, resulting in wear on crankshaft and bearings.

Oil samples were taken at 1000-mile intervals, and tests indicated that, with LPG, oil-change periods could be extended to 15,000 miles instead of every 2,000 miles with the same vehicle using petrol as fuel. Carbon deposits were light after LPG operation and easily removable, but the exhaust valve seats were slightly pitted.

NRMA drivers noted that the car ran smoother on LPG and was quieter. This was because of the more even burning of the gas. Towards the end of the test there was a loss of pulling power on hills, due to the exhaust valve condition.

The test also showed that carbon monoxide emissions when using LPG were between 75 and 86 per cent lower than when using petrol.

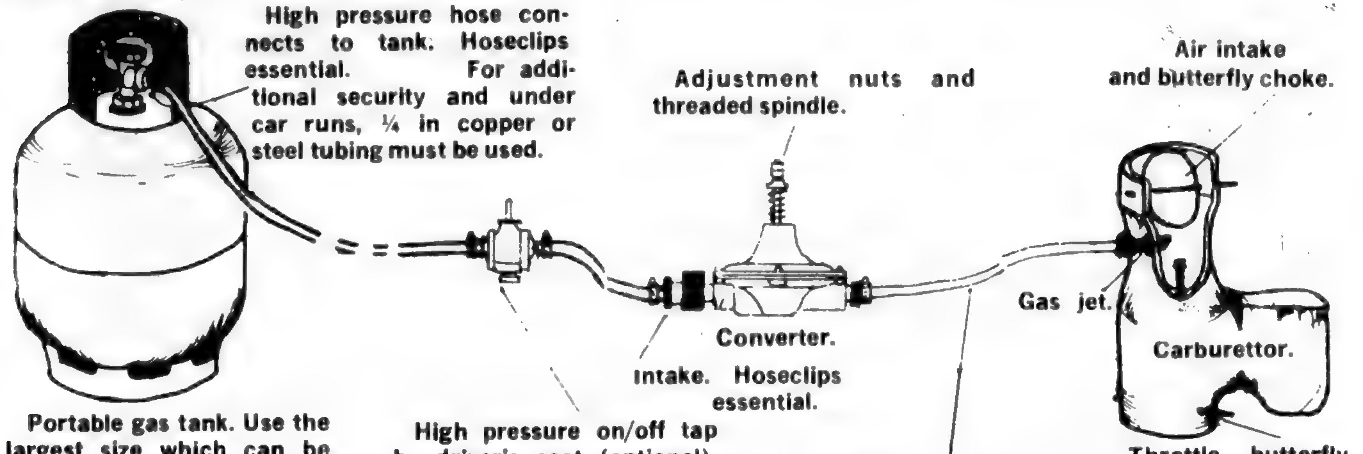
Operating costs worked out at 1.84 cents a mile as against 2.27 cents a mile using petrol.

There were some disadvantages with LPG use.

Cost of conversion was about $250 (the cost today for a car would be about $500-$600 and for a heavy truck about $600-$700, but the system has been improved and enables use of petrol or LPG as desired). There was also a loss of boot space to accommodate the gas cylinders.

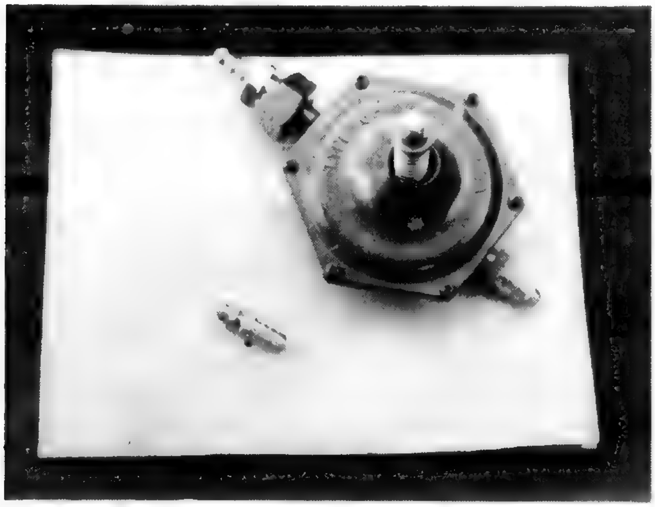
Obtaining a supply of LPG was difficult outside Sydney, and in some areas of the city. Most garages which supplied LPG had cylinders no larger than those used in the car.

THE EARTH MOVE CONVERSION KIT


Excess flow valve (designed to close if the fuel pipe is fractured) and safety release valve may be fitted between the gas tank and hose.
High pressure hose connects to tank. Hoseclips essential. For additional security and under car runs, ¼ in copper or steel tubing must be used.
Adjustment nuts and threaded spindle.
Air intake and butterfly choke.
Gas jet.
Converter.
Carburettor.
Intake. Hoseclips essential.
Portable gas tank. Use the largest size which can be carried upright in the vehicle.
High pressure on/off tap by driver's seat (optional). Hoseclips essential.
Throttle butterfly.
Low pressure gas tubing. Hoseclips optional.

depollute your car

EARTH MOVE conversion kit and booklet, PO Box 252, Winchester, Massachusetts 01890, USA.



We would say that the EARTH MOVE kit is the "bare bones" needed to change a motor vehicle from petrol to gas power.

It consists of a saucer-sized squat converter, made of metal, which looks rather like a lawn water sprinkler. With this comes a separate, small (1½ ins long) brass "gas jet".

A hole is drilled through the wall of the venturi or choke section of the carburettor and the gas jet is "spudded in". This is the only change to the motor necessary.

So this hardware and the thick (100 page odd) "Instructions and Information" manual is what you get for your $35. (US).

The car owner must supply the remaining necessary equipment needed for the conversion — portable LP gas tank, ten feet of high pressure tubing to connect the gas jet to the converter and the converter in turn to the gas container, plus hose clips to connect the tubing.

"This is certainly gas conversion without the frills", the manual says. "The converter will meter gas forward to any motor, exactly as needed, no matter what type of gas fuel or tank is used. There's no 'overflow' or leakage, and it will stop fuel dead when you stop. It won't 'reverse' or allow ignition back either".

There you have it. We would recommend the EM conversion kit to people who know about cars, gas freaks, mechanics and creative tinkerers. The manual is packed with inspirational information on gas power and methane generation, including some from EG, so mention us if buying.

* * *

NEW EARTH TIMES, PO Box 252, Winchester, Massachusetts 01890, USA. $A5 yearly subscription.

New Earth Times is scheduled for publication hopefully in September, 1974. It is the brainchild of the EARTH MOVE people, who have been trying to get it off the ground for some years now.

If they do, and we hope they do soon, NET will be the best source of news on alternative power, particularly bio-gas and its applications. Articles planned for issue one include: sequence-strip photos of some EARTH MOVE conversions, Harold Bate revisited, Graham Caine's London "Eco-House", a new set of information and revisions of the EM booklet, plus more gas plant designs and know-how. Sounds good.

conversions & refills

The commercial conversion of a vehicle from petrol to gas power involves replacement of the carburetor with a gas carburetor, a large converter, which includes a heat exchanger and regulator, a substituted air filter and an on/off fuel lock.

The regulation LPG tank, with the correct valves is also supplied. You should check with the Gas Inspector in your State before using any type of gas container.

The LPG sold in portable tanks for vehicle use is pressurised to liquid form and gas is usually drawn off in this form from a "drinking straw" tube which reaches down into the bottom of the container.

This is the reason for the heat exchanger used in commercial changeovers, as a freeze up would occur otherwise as the liquid changes to gas.

The EARTH MOVE kit short-circuits this freeze effect by using available gas at the top of the tank which is not in liquid form, and the liquid-to-gas change actually takes place in the tank.

If the tank is too small or a big vehicle is drawing on a small tank, then freeze-ups may occur in the EM method too. The makers suggest using the largest size LPG tank which will stand upright in the vehicle boot.

EQUIPMENT: LPG carburetors, converters, fuel lock and air filters:

Brooklands-Machins Pty Ltd, 68-78 Sturt Street, South Melbourne, Victoria, 3000. Tel: 62 0211. Century gas equipment and Borg Warner fuel controls.

Impco Carburetion Inc, 16916 Gridley Place, Cerritos, California 90701, USA. All kinds of LPG and natural gas converters and carburetors. Distributed by Ateco Pty Ltd (see below).

Beam Products Mfg Co, export division, 222 Ave del Norte, Redondo Beach, California 90277, USA. The same, also spud-in converters, hose adaptors, carburetor adapters etc. Used by Repco.

LPG CONVERSIONS: Ateco Pty Ltd, 21-27 William Street, Alexandria, NSW 2015. Tel: 69 7161. Use Impco LPG kits. Around $500 quoted on six cylinder Chrysler Valiant station wagon with petrol/gas switch.

In other States, contact Olding Industries Pty Ltd at these addresses:

VICTORIA: Fairbank Road, South Clayton, 3169. Tel: 551 2666.

QUEENSLAND: 37 Industrial Avenue, Wacol, 4076. Tel: 72 3792. Cnr Woodcock and Hamill Streets, Townsville, 4814. Tel: 79 7722.

SOUTH AUSTRALIA: Unit 1, 28 Gray Street, Kilkenny, 5009. Tel: 268 2126.

TASMANIA: 411 Hobart Road, Launceston, 7250. Tel: 46 9402.

Repco Auto Parts (NSW) Pty Ltd, 27-45 Palmer Street, Sydney, NSW, 2000. Tel: 358 0477. Quoted around $400 on the same deal. Prices vary according to the vehicles and are influenced by cost of labour and tax on parts used etc. Repco in other States.

BRISBANE: Memmott & Co Pty Ltd, Automotive Engineers, 8 Collingwood Street, Albion, Brisbane. Does conversions for Porta-gas Co. Quoted about $400 for a conversion.

We'd like to know of other LPG conversion addresses, especially if any EG people are involved.

As we write LP gas as a fuel is still untaxed. Despite the recent price rise it still compares favourably with petrol at about 32-34 cents a gallon to 55 cents for "super" petrol.

The newly-formed Shell-BHP Autogas Pty Ltd already has LPG for sale at retail outlets in Victoria, but not yet in other States, though we believe this is planned.

The usual car tank used for LPG contains 18.2 kg or 40 lbs, which is the equivalent of 8 gallons. Mileage per gallon is about the same as for petrol, though cars fitted with dual petrol/gas switches are about 10 per cent less efficient in mpg.

Sydney sources: Speed-E-Gas, Burrows Road, St Peters. Tel: 51 3671 — quoted us 34 cents per gallon after the price increase.

CIG, 138 Bourke Road, Alexandria. Tel: 667 0411 are now charging $2.51 for a 40 lb tank, that's about 32 cents per gallon.

There are other bulk sources of gas, for fleet owners who have their own storage facilities, such as Shell Gas, 48 Edwin Street, Mortlake and, we believe, the North Shore Gas Co.

In Melbourne, Gas Motors, mentioned in A Gas Truck, way back in EG1, has either shifted, or gone out of business. Any feedback?

You will have to check through your local pink or yellow pages telephone directory and check through the listings of LPG suppliers and gas equipment to find your nearest supplier and his prices.

The merger of Shell and BHP into Shell-BHP Autogas Pty Ltd has brought the use of LPG power into the reach of car and truck owners, particularly in Victoria.

The company's gas, sold under the trade name of GOGAS, comes from Shell's Geelong refinery and BHP's Bass Strait oil wells. Road tankers take the gas to the 13 metropolitan and 13 country filling stations in Victoria.

The main Melbourne outlet is the Shell Glenbervie Auto Port, 307 Pascoe Vale Road, Essendon. Telephone 37 8767 for the addresses of other metopolitan refilling sites. GOGAS Office is at 312 Pascoe Vale Road.

Country GOGAS outlets:

BALLARAT: Ken Belsar Pty Ltd, Glenelg Highway, Shell Depot, Creswick Road.

BAIRNSDALE: Shell Depot, Princes Highway.

COLAC: Shell Depot, Princes Highway.

GEELONG: Shell Speedwings Station, Melbourne Road.

WARRAGUL: Shell Depot, Queen Street.

WARRNAMBOOL: Neptune Depot, Princes Highway, Dennington.

WODONGA: Joe's Shell Service Station, Hume Highway (24 hours).

ORBOST: Shell Depot, Princes Highway.

DENILIQUIN, NSW: Shell Depot, Sloane Street.

MOUNT GAMBIER, SA: Gambier Truck & Tractor Pty Ltd, Princes Highway.

DUCKS

BY ANN HEYWOOD

On the day I arrived home from hospital with Son No 2, my husband arrived home with Son No 1, proudly bearing an old white hen and seven yellow, fluffy, Pekin ducklings.

Young Evan hardly noticed the time I spent with the baby. He was so intrigued with his ducks.

In the ensuing time we've tried several breeds, had success and failures, but remained very enthusiastic about ducks. Perhaps I can help someone else to avoid the failures we had, through inexperience.

Why keep ducks?

(1) **For decoration:** Beautiful Mallards or Rouens can grace your dam or creek ... but even the other breeds have their beauty and can keep you entertained with their antics — especially at bath time.

They don't seem to waste much time with the pecking order, as fowls do. We had two villainous old Pekins here who shared adventures. They'd squeeze under the gate and sneak unseen to the pumpkin patch where they ate all the seeds, or they'd arrive, quacking loudly, at the front door, "singing for their supper".

(2) **Eggs:** Perhaps they haven't got the fine flavour a hen egg has, but they're beaut for omelettes or cooking (home-made bread — mmm!). The bonus is that our ducks lay all winter while the hens moult, and moult in summer, when the hens lay.

They do eat more, but they lay more — an egg daily for month after month. If you've had trouble with your hens in the garden, or getting over fences, or illness, perhaps ducks are for you. They are rarely sick and rarely get out of their enclosure.

Any damage they do is mainly caused by their large webbed feet or bodies plonking on something. One disadvantage is that they just leave their eggs anywhere — usually in their pen in the morning — but I have found one floating on the edge of the pond.

Khaki Campbells or Indian Runners are the egg-laying breeds. Khakis are handsome brown birds, especially the drakes. Indian Runners are fine, tall, white birds that trot rather than waddle. They both lay over 300 eggs a year. We are keeping both successfully at the moment.

(3) **Meat:** Ducks grow rapidly in 10-16 weeks. It's best to only grow a few for meat at a time, as they won't prosper if overcrowded. Pekins and Muscovies are meat breeders and can be bought as week-old ducklings from hatcheries.

Pekins are tall white ducks with yellow beaks (remember Jemima Puddleduck?). They grow rapidly in the first few weeks, which is an advantage as tiny ducks are more likely to die. They're quiet and shy. But they can still be very noisy at times — remember 'Shebert', the duck from Mt Eliza, Victoria, whose owners were sued because she kept on quacking?

They're good layers. We only discontinued them as we found the breeds we now have lay better, and keeping too many breeds at once isn't wise.

Muscovies seem the most popular breed. They are not true ducks, but related to geese. If they breed with other ducks the offspring are infertile. Their eggs take 35 days to hatch as compared to 28 days for other ducks. Ultimately, they grow larger than other breeds and are good mothers.

We found the problem with Muscovies was that they fly well — right into the veggies (hovering just out of reach!) and demolish them. I know other people have had this trouble, though other strains may be different.

points

- Ducks are easy to raise. Compared with fowls, ducks lay bigger and richer eggs, require less housing, are tougher and less prone to disease.
- Ducklings grow more quickly than fowls and are less likely to get ill.
- However, ducks need more land, do best on a grassy run and tend to be more nervous.
- Duck sexing is simple at eight weeks: females quack; drakes can only hiss.
- Hens' eggs keep longer than duck eggs — hens' eggs for 21 days; ducks' for only nine days.
- The duck's webbed feet were designed for swimming, not for walking, so their area should be fairly smooth or grassy, cleared of stones.
- Ducks will continue to lay eggs for five years.
- Ducks will eat bread scraps and fresh kitchen scraps, well chopped. They relish cooked and minced fish heads and other fish scraps.
- Turn ducks into the garden during winter one hour before daylight to control snails and slugs. Ducks forage with their bills and do not disturb the soil.
- Children love looking after ducks and are well rewarded in this hobby by the playfulness and friendliness of the birds.

(4) **As pest controllers:** Ducks can work well as pest controllers, but it varies with the duck and not the breed. I know a man who has two Khaki Campbells doing this job, but ours ate the butter beans.

We had a couple of terrific Pekins — reared away from the flock. They worked diligently until they realised there were other ducks in the paddock. Then they downed tools for ever! So if your duck does eat vegetables, try another. But if you keep other ducks, don't try to keep one alone in the veggie patch as it will never be happy.

At the moment we have a pair of Indian Runners on the pest patrol with success. One drawback is that snails etc are out at night, a time when ducks are better locked up to protect them from foxes (both the four and two-legged variety).

General points: If you don't have a creek or sizeable dam you can use various containers as ducks do need plenty of fresh water or they can become overheated and perhaps die. They will dabble their food (unless pellets are fed), and also they have very fluid droppings and will quickly turn the surrounding area into a sea of mud which attracts flies. You can prevent this to a certain extent by rigging wire netting around the containers.

It is best if ducks aren't run with hens if confined. If they are, the hens should be provided with fresh, clean water which the ducks can't contaminate. If the two types of bird are confined together, the ducks' fluid droppings become breeding grounds for poultry parasites.

I find a few ducks and chooks for our egg supply don't really affect each other when they have plenty of space. But if the numbers increase the chooks can become sick.

A small number of ducks helps to control flies by eating them and their larvae.

To breed your own ducklings (and they **are** gorgeous), you will find a drake can manage about six ducks. If your duck isn't sitting (they vary in this), then a hen will do. You should turn the eggs for her and sprinkle them with water a couple of times a day. The duck eggs are heavy for a hen to turn and she doesn't leave the nest to swim as a duck would, so by sprinkling them you will make the atmosphere more humid.

Once hatched, leave them to mother hen's expert care, though she will be quite alarmed when they start to swim.

When we started we bought some ducklings from a hatchery, to build up our numbers cheaply from another blood line. They can be bought at week-old, or off the heat (about three weeks — dearer, but past the stage when most losses occur). We made a mistake by getting a few dozen. We would have been better to get them ten at a time, as too many can result in complications and losses.

A gradual increase is better, even if a few are very successful. We also tried to get them to follow clucky chooks. This was a waste of time as they just won't when they've been artificially hatched. We used an infra-red brood light with success.

Young ducklings will die if not kept dry and clean. Their dabbling will soak their bedding in the early stages, so you could use a plasto drink — a plastic bottle which only allows water out as it is drunk. Later you'll have to rig up some wire netting around the bath, so most of their bedding stays dry.

When off the heat you can keep them in a mobile coop as they will quickly soil the grass if confined. I have turned them loose when quite young as we have a lot of shelter from hawks — and even artificially hatched ducklings have an instinctive fear of them.

So good luck with your ducks. With the breeds suited to your purpose and a gradual increase in numbers you should have success and derive pleasure from them.

PS: The first word that new baby of ours said, as he crawled to the fence to watch the chooks and ducks — yes, of course, it was "duck"!

BY ALISON BIRD

You could describe a duck as a two-legged mechanism for converting weeds, snails, insects and bran mash into eggs and lovely manure for your compost heap.

We kept two ducks for a year and in that time they completely removed the snails from our garden — in a more natural way than by the use of poisons. They also kept down the oxalis weed and ate grasshoppers and other garden pests — even mosquitoes and ants.

We think Pekins and Aylesburies (or a cross between the two, such as we think our ducks are), are the best pets out of the white ducks.

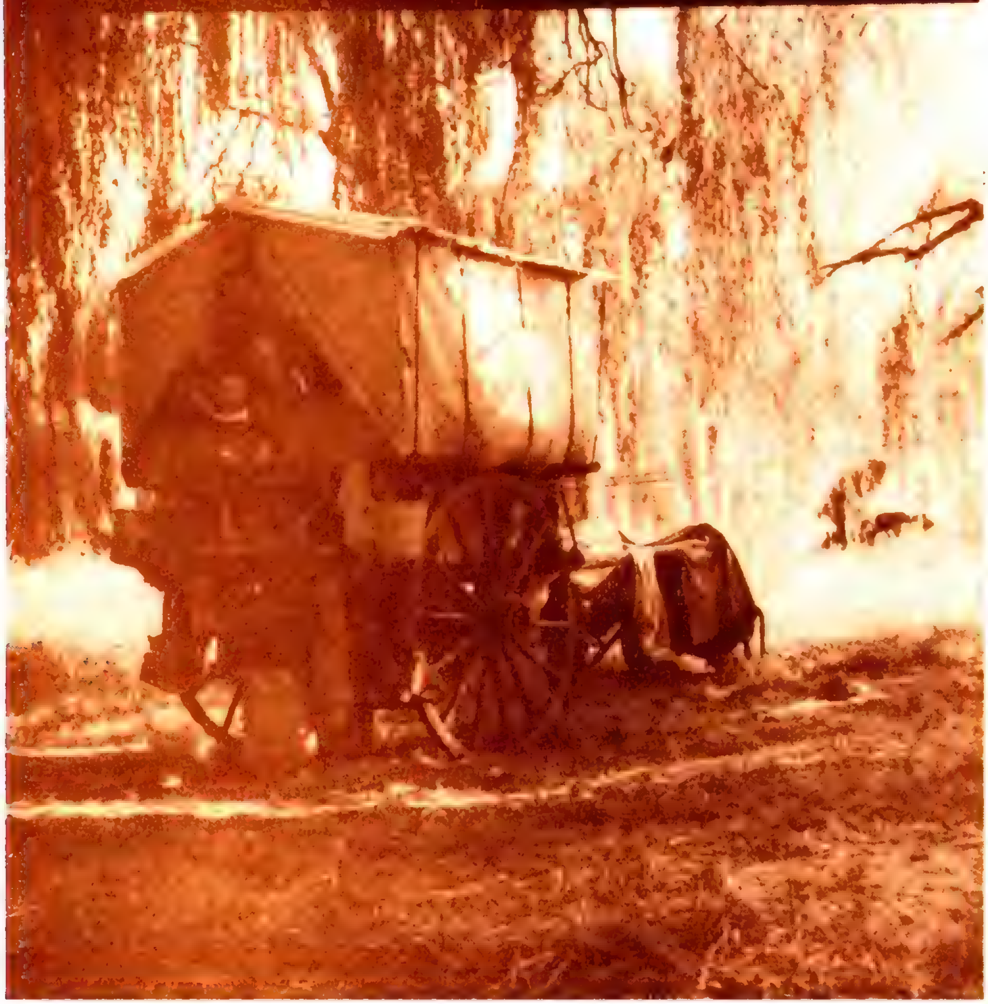
They are so friendly and look nicer than others, though my argument here is only based on a contrast between our ducks and some terrible looking Muscovies belonging to a friend.

A pair of Pekin females make wonderful pets, but drakes are a little savage, and, of course, don't lay . . . though they don't quack either. The quacking of ducks can be easily overcome by locking them at night into a big box which is just too low for them to stretch their necks when standing upright.

Ducklings can be bought at Sydney's Paddys Market for about 60 cents each, but it is sometimes cheaper to buy males. Bran and pollard, bought in bulk from a poultry food shop, should be mixed together, with water, in a porridge-like mash.

It should take about five or six months before your ducks lay, and then you will get one egg from each, practically every day.

When we left Peapod and Popcorn (pictured above) on a farm while we went on holidays, they met a drake and now would be reluctant to come home. We were very attached to them, and will get some more ducks soon, I hope.



BY PHIL O'CARROLL

I walk out of academia: September 1972. I take up wandering. I live in large ute, mostly with Jesus (born 1971) and Jewel (born 1946).

Lifestyle is right except for car. Fuel, repairs, ugliness and driving.

I think: horse and cart! Don't need speed. Not going anywhere. In camping life, one mile is a new place.

Pick peaches for 2 weeks for money. Go to Albury. Advertise in paper for cart. Twelve replies. Only one with sound wheels. Two 5-foot wheels, 2 x ½ inch iron tyres. Buy for $10. Built to carry one ton.

Advertise for heavy horse. No replies. Heavy horses hard to find. Need to do up cart. Advertise for large shelter shed, use of tools and paddock for horse in return for a bit of free work.

Get same plus some money for feeding pigs every morn. Do up cart with 6 x 6 x 4 feet living space on top. Stores in cart tray. 6 weeks work. I name it the good ship VERITAS. Pick up bits of harness from all over town. Some repair work, using bits of leather, seat belting, felt, canvas, glue, thread and rivets.

Meanwhile discover a heavy horse. Owner won't sell — sentimental. Find another 15-year-old ¾-draught. Very quiet. Buy for $115. Name him ANIMA.

I learn to handle, harness, and drive. Lovely. Easy as pie. Advice from old buggers. Main hardship — them and others insisting project is impossible. ANIMA bit weak on uphills.

Discover another horse, 9-year-old full-draught. Much stronger. Buy for $300. Name him BOY with blinkers off, MODERN WESTERN SOCIETY with blinkers on. Pull anywhere. Nervous at first, now tame as kitten.

Sell ANIMA for $200. No rent, no petrol, no repairs, grass free. "My property" extends all over Australia, albeit in criss-cross pattern. No shortage of beauty spots to camp. Every few miles along country roads there are reserves, originally set aside as rest and feed places for cattle on the move.

HORSE: Phil O'Carroll and blinkered friend (above).

CART: Jewel & Jesus in the $10 cart (below).

Off the track with a horse and cart

Tether horse on foot. No worries. Horse pulls dead trees for firewood, cars out of bogs, etc. Driving at 3-10mph allows senses open to environment. Horse unlike car, with own brain avoids trees, ditches etc. Country people respond friendly to cart-dwellers. So do tourists, town-dwellers, and bikies.

After 12 months, no hassles from the people. Only hassles from officialdom. Local councils worry about "gypsies", occasional cop trying to find a law against it, and Child Welfare trying to force "family" back into suburbia.

Simply argue back: when seriously answered-back, officialdom turns out to be bluff.

Comfortable way of life. Lighting by sun. In such a small dwelling, heating not required. Cook on fire except during fire-ban: then use gas bottle in wagon.

High-speed long-distance travel by hitchhiking. Leave horse and cart in someone's paddock or backyard if no one's using it. Only constant expense food. Money from dole or occasional rural labour — 3 days work per 6 weeks live. Work almost enjoyable at this rate.

Anyone welcome to come and stay: sometimes 12 people around, sometimes 6 sleeping in cart. Just write to Phil O'Carroll care of post office Albury, NSW, 2640 for current map. Would love to join another horse and cart.

Overleaf: Phil shows the 'how-to' of handling and harnessing.

People's first reaction on meeting horse-and-cart people is often to agonise about practicalities and politics. When really it's all about experiences and fun and love and everyday living-and-relating just how I always wanted to.

It doesn't matter to me that the cart is slow, I might get a snakebite, etc. (Indeed, slowness is good and snakes are shy.)

And people are surprised to learn that I'm not trying to set up a model of an alternative lifestyle except to the tune of DO YOUR OWN THING.

Horse-and-cart wouldn't be viable for everybody all the time anyway. Let everybody do their thing and we can change scenes and crash scenes as we feel.

CLYDESDALE $300

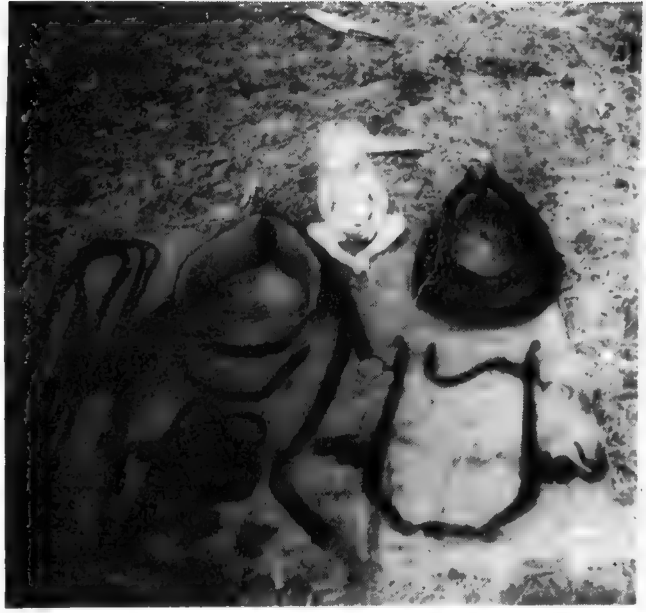
A nervous horse will change his attitude with a bit of love and handling.

You may buy a horse that hasn't been handled for ages. But after a few weeks of attention he becomes a good friend.

For riding and working put blinkers (or winkers) on harness horse. For general pulling jobs put collar around horse's neck. Collar must fit individual horse and not choke him.

Put hames (metal bands) on collar. Hames have hook on each side to which chains are attached.

Chains can pull cars, logs, carts, etc. In carts, chains (one on each side of horse) are attached to thick end of shafts. In a one-horse cart further harness is needed; saddle across horse's back and breechin' strap around horse's bum.



HARNESS $25

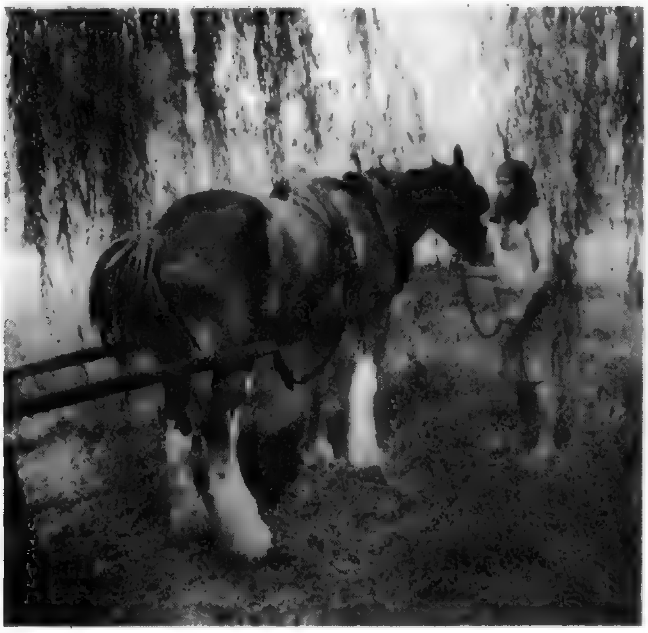
The saddle holds up the shafts via a "backstrap" which has loops buckled into it. Such a cart-saddle has a normal belly-strap as well as the backstrap. The backstrap buckles into a complete circle around horse and shafts.

A breechin' strap is buckled at each end to the shafts leading around the horse's bum, supported in this horizontal position by lighter straps which go over the horse's rump.

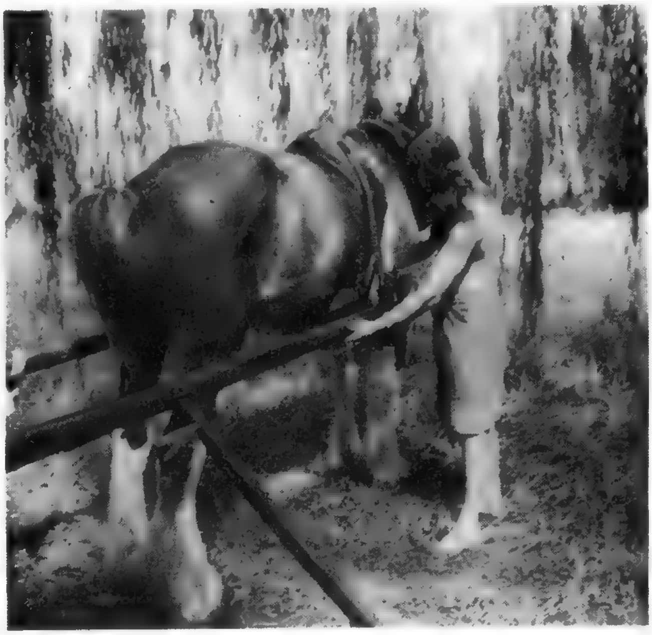
When horse decelerates or goes downhill, this breechin' strap prevents cart from crashing into him.

So total harness for one horse and cart is blinkers and long reins, collar and hames, chains, cart-saddle with backstrap, and breechin' strap.

Two-wheel wagons usually have no brakes. But steep uphills can be handled by dragging a beam behind the wheels, so that when horse stops to rest, wheels rest on



BACKING INTO SHAFTS



LOOPS

HAMES

REINS

beam rather than rolling back down the hill.

For steep downhills, one or both wheels can be tied to chassis. For supersteep downhills they say tow a log.

Draught horses are typically very co-operative and usually respond to purely verbal instructions: "giddyup" for go and "whoa" for stop.

Reins work as with riding horses. Horse responds to fine control enabling driving thru busy traffic lanes etc if desired. Carts with large wheels can go places cars can't go such as 2 or 3 feet of water or bumpy ground.

In 2-wheeler turning on the spot is possible: horse steps sideways. Beautiful to watch. I use large red flag on highways. No scares with traffic so far.

Regular work on roads entails that horse must be shod. You can't buy draught horse shoes. Farriers make them on a forge and put them on. I've now learned to put on shoes — it's easy and fun. They last about 3-6 months.

Twelve miles is a joyride. Thirty miles a day is easily possible with a well-exercised horse. Some old buggers boast 100 miles in a day.

Naturally, they graze on and off all night: so concentrated travel, days in succession, entails feeding the horse with oats and or hay. Don't give wheat or wheaten hay.

Wheels must be greased every 20 miles or so or hubs wear out. A fair amount of slap is okay with wagon wheels. Indeed firm bearings are bad. My wheels flap about 6 inches at the rim.

Upkeep minimal and much less exacting than cars.

Secret of enjoyment of harnessing, handling and driving is don't be in a hurry. You have to adjust from car living.

BREECHIN' STRAP

CHAINS

BY MICHAEL BODDY

Did you know that you can cure your own olives and thus avoid the great expense of buying ready-cured ones in the shops?

I bought four pounds at twenty cents a pound from the market to do for myself and they're just ready to eat. The green olive (unripe) is very bitter, and you have to treat it before it is edible.

The best way is to soak the olives for a few days in a weak solution of lye (an alkali), and then wash them for four days by soaking them in water and changing it every day.

The lye penetrates the olive almost to the centre, but has to be washed out because in itself it is inedible. Remember also that when you are changing water or solution with your olives you should always throw out any bruised or decaying ones.

When the olives have been washed, you put them in strong brine, four, five or six weeks until the bitterness is gone. Change the brine every week, and test. When they are no longer bitter, put them into a weak brine mixed with white vinegar, and add a garlic clove or two.

Be quite sure that they are always kept in an air-tight container. I have discovered that they decay and discolour when they come into contact with air.

When I did mine first of all I didn't know about the lye. So I soaked them in fresh water for a week, changing the water every day, until I started on the brine. I used about half a pound of salt in the water for every five pounds of olives. The whole process took about eight weeks.

If you want to speed it up, you can prick the olives, or mash the outsides of them slightly with a fork, and even use warm water. This way they can be ready in a week.

I bought another four pounds of semi-ripe ones and did the same thing with them. Now I've got a year's supply for $1.60, in four air-tight crocks in the pantry. Pretty good, when you consider what you pay outside!

The semi-ripe olives are softer than the green, and squidgy. They are excellent dropped into stews, spaghetti sauce, and on top of pizzas. The green ones, we just eat with cheese. For the table, you can wash off the brine-vinegar liquor and roll them in good olive oil, flavoured with garlic.

If you are thinking of growing your own olives, you'd better start soon. A tree doesn't come into bearing much until it is 16 years old, and unless you are using an irrigation system, the tree will not be bearing full crops until about its fortieth year!

But they're beautiful trees, and you will get an olive or two after six years — if you're lucky. One mature tree will give a family about a ton of olives — enough for eating, cooking and baking oil, cosmetic oil, and lighting oil.

A remarkable tree. No wonder ancient peoples got so annoyed when a neighbouring tribe laid waste their lands, and cut down their olive trees! It would have been their sole source of protein almost, and their light and beauty.

The olive is one of the oldest cultivated crops. It was used as early as 3000 BC in the Middle East, and good oil was a highly priced luxury. Harvesting for fruit pickling is done when the fruits are still green. If the fruits are left on the tree, they become black when ripe and are then pressed for oil. Pure oil is extracted cold from the finest fresh olives which are crushed only. The trick is to get the oil away from the pulp as quickly as possible. The result is a really oily oil, green in colour, known as "virgin" oil.

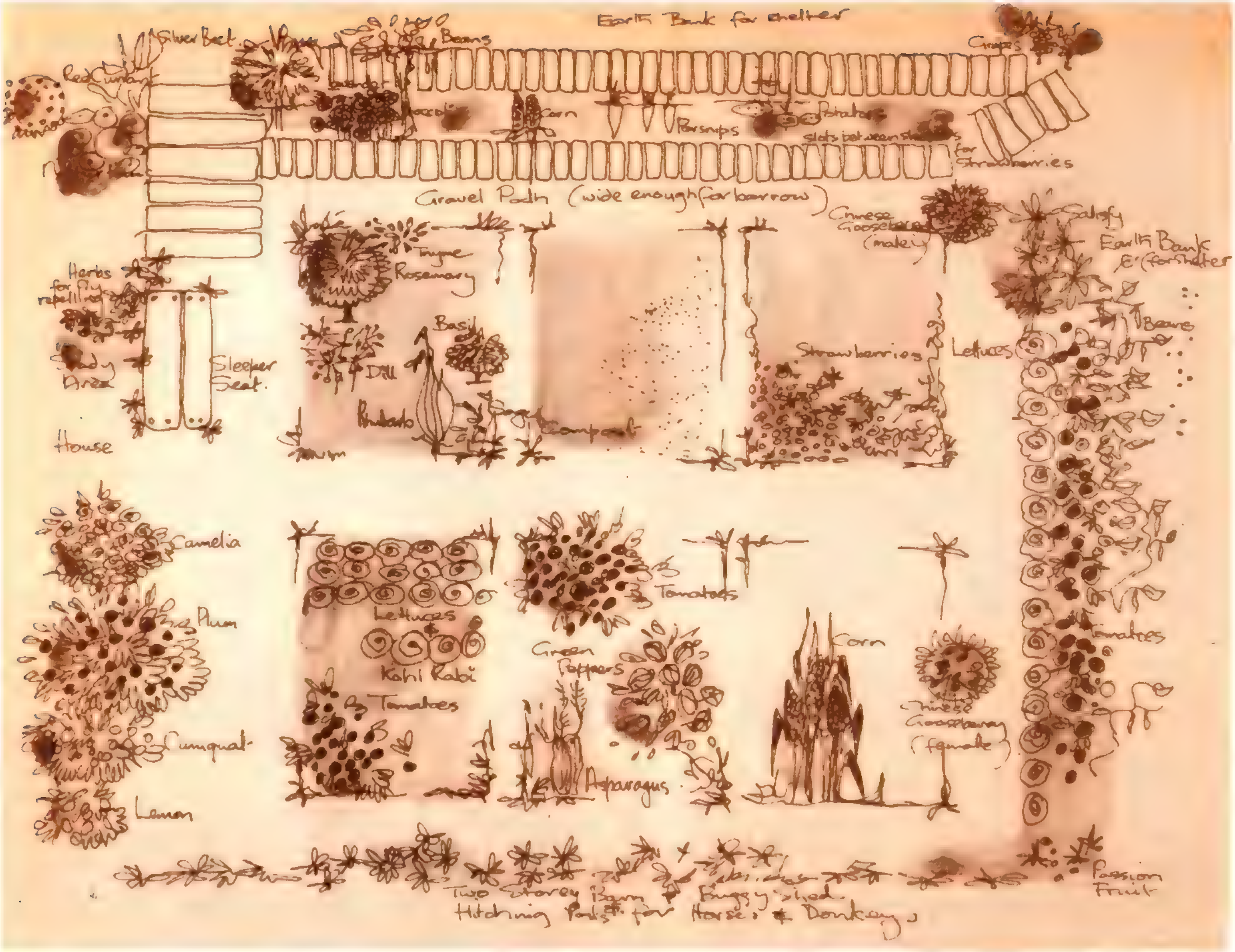
The second grade oil is extracted from the pulp under pressure and heat. It is white and doesn't keep as long as pure oil, becoming rancid in the air. The third grade is extracted from windfalls and fermented olives, treated with solvents and sulphate of carbon, and then neutralised and rendered colourless. It is intended for industrial use, but is often used for adulteration.

The chances of getting the absolute pure virgin oil are slim. Most oil is blended, but the good quality export oils from Spain and Italy are of top grade.

Oil connoisseurs close to the source of production talk about virgin oil as wine experts talk about wine. The oils of Provence are particularly regarded locally.

In Australia the oils of Spain are the best for all-round cooking use. If you want a rich oil for salads and specials, try the oil of Lucca canned by Bertolli. It's more expensive, but it's the best that Italy produces. The Greek preserved olives (Calamata) are the best, if you buy black olives. Their oil is good too, but not quite of the quality of Spain.

Most of the Australian olives are grown in South Australia. There's a big business in olives here now. From what I can gather, they are mostly used for pickling. Local oils don't taste very good to me, but that may be prejudice. I think most of the oil goes into industry, and is used in canning.



our earth garden

BY E. SOUTH

I have been inspired to write to you by the terrible tidings that you planned to pause at EG10. Please don't. We have started our garden with EARTH GARDEN in one hand and a packet of seeds in the other.

We have had success beyond our wildest dreams. We built up beds with sleepers as we were down to clay on the area excavated for our house. At the moment we are not buying any vegetables at all.

Last year our ten acres provided six pots of blackberry jam and one donkey foal. This year, with EG, we have potatoes, tomatoes, peppers, corn, kohl rabi, strawberries, cabbage, lettuce, beans, salsify, sage, thyme, chives, parsley, dill, oregano, basil, rhubarb and silver beet.

We planted two passionfruit and a pair of Chinese Gooseberries after reading Neil Douglas on 'if you don't plant it, you won't bloody have it'!

Four donkeys are slowly eating the blackberries, thistle and gorse. There is money in breeding them. The trouble is, you can never bear to sell them. We have another one due in May.

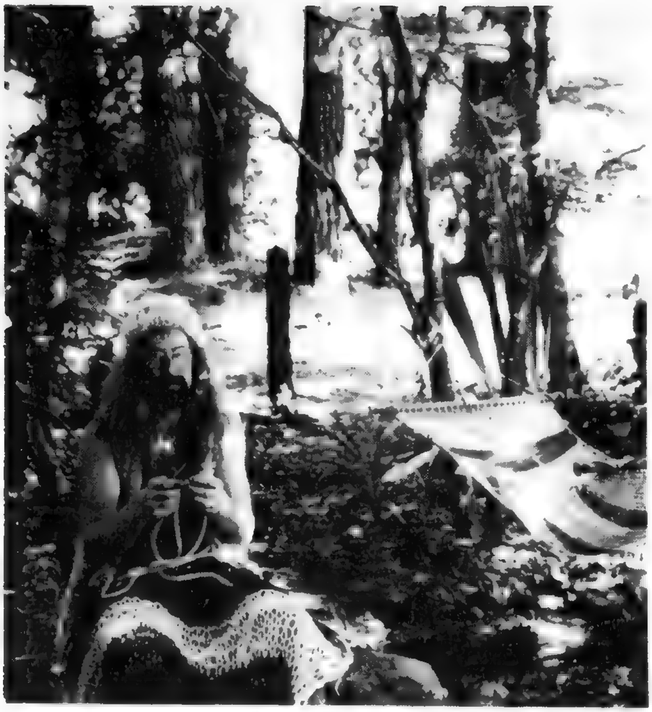
We also have two well-trained harness horses to pull the assorted horse-drawn vehicles my husband loves to repair. He also repairs organs (musical).

We were recently on Flinders Island and found an even better way than boiling sea water for salt was to get it out of rock pools, where it had evaporated to lovely white crystals. We got about two years' supply in an hour or so.

We are finding salsify ("vegetable oyster") a fantastic vegetable ... tastes better than oysters — the kids fight each other for a taste. I read that it can be left in the ground over winter and used and nothing seems to attack it though we have slugs, aphis, cabbage moths, crickets, chooks and donkeys from time to time. All this takes place in Ballarat, reputed to be very cold.

We feel set for the energy crisis, with transport, food and EG. So please keep it coming.

Any suggestions on how to combat cabbage moth? The derris available all seems to have chemical additives.



MAKE A RUG FRAME

BY MANDI AND RON HEATH

Two years ago we became increasingly put out by the suburban sprawl enveloping us.

We were living at Upwey, 25 miles from Melbourne, in the Dandenong Ranges. But after searching for some time we found the more rural atmosphere for which we yearned was only 12 miles away . . . at Emerald.

The house we found was relatively new and built with second-hand materials. The downstairs room, 40 by 15 feet, gave itself admirably to cottage industries.

Our interest in spinning and weaving began five years ago, when we were living in a mud-brick barn at Eltham, outside Melbourne. From the time we started we were constantly being asked: "How do you spin wool?", "Where can I get a spinning wheel?" "What sort of wool do you use?" and so on.

So when we settled at Emerald, Mandi started spinning classes, Ron ran a few rug weaving classes and we began to sell locally made spinning wheels. Now at WHEEL AND LOOM we provide outlets for some thirty 'Hills' crafts people.

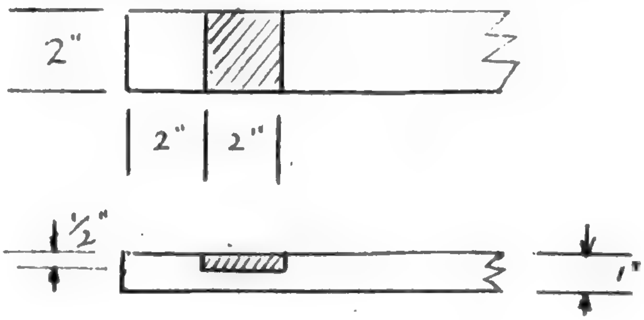
Here's how we suggest you make and use a rug frame:

A SIMPLE RUG FRAME

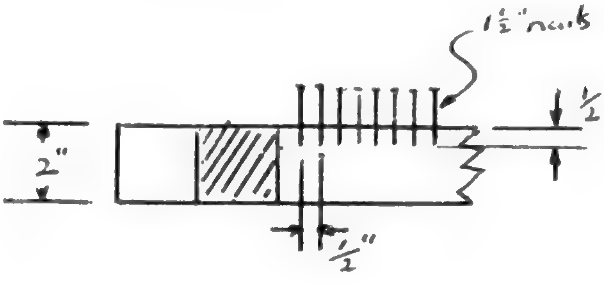
Materials needed: timber . . . (2 x 1 inch) . . . 2 pieces each 29ins long, 2 pieces each 58ins long. 3-ply . . . 2 pieces each 10 x 3 ins. ¾-inch dowel . . . 1 piece 32ins long. (2½ x ½-inch) . . . 1 piece 26ins long. Screws . . . 4 x ¾ins. Nails . . . 84 of 1½ins nails. Two clamps with 3 inch jaws.

MAKING THE FRAME

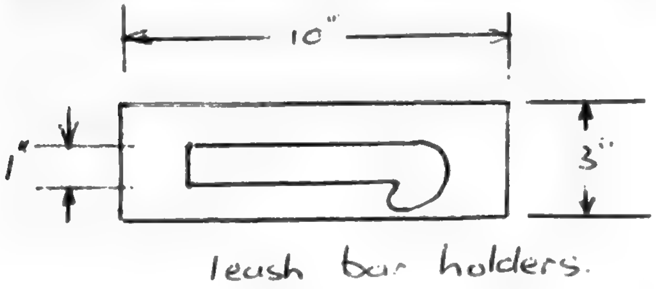
(1) Cut out recessed joints in each end of each of the frame members (2 x 1ins).



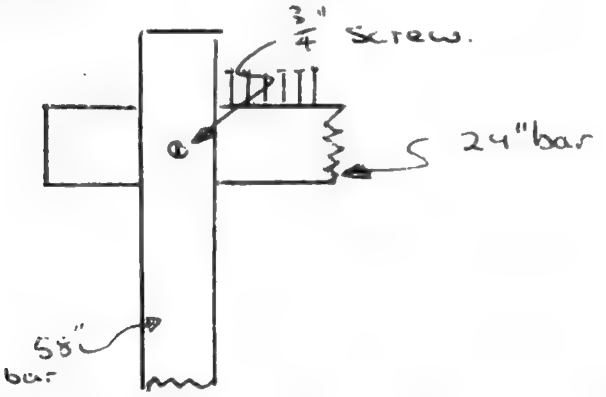
(2) Tap nails into 29 inch frame members at ½-inch centres — 42 nails in each member.



(3) Cut 'J' shape in both 10 x 3ins three-ply leash bar holders.

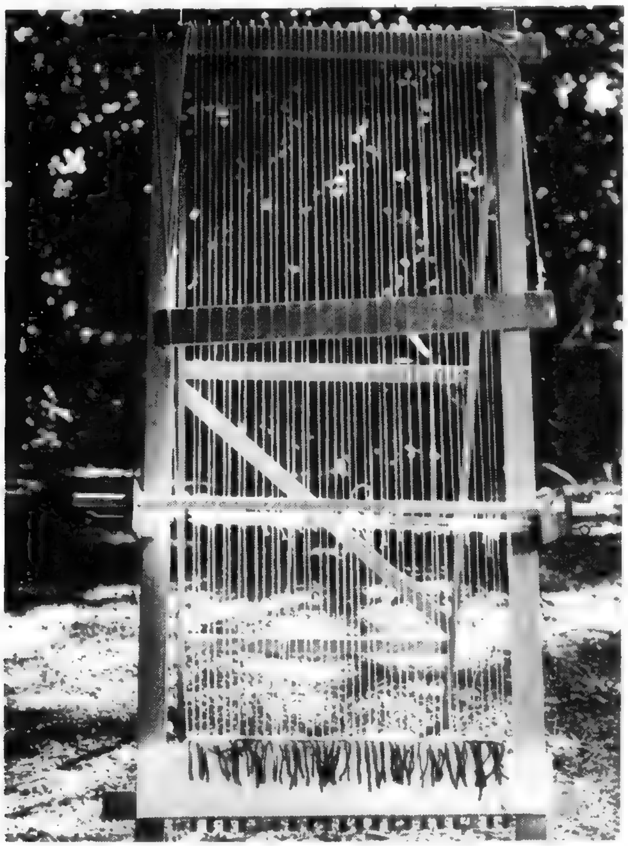


(4) Join frame members with ¾-inch screws.



(5) Clamp leash bar holders to outside of upright members (58ins) with 2½ins clamps (approx 2 feet from bottom).

Your frame is now ready to use.

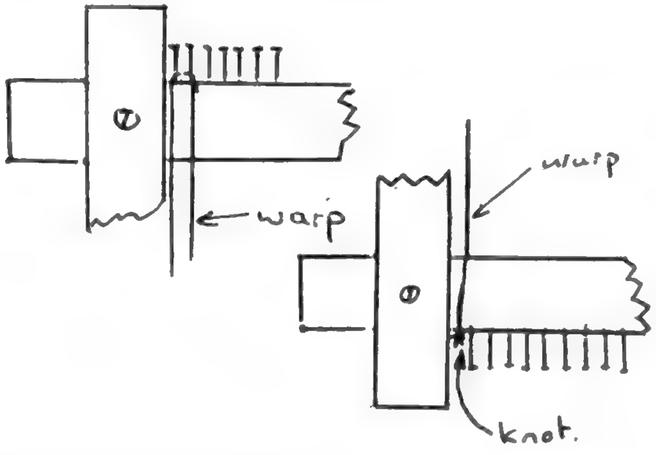


MOUNTING WARP ON FRAME

Warp ... parallel lengths of thread through which fabric yarn is woven.

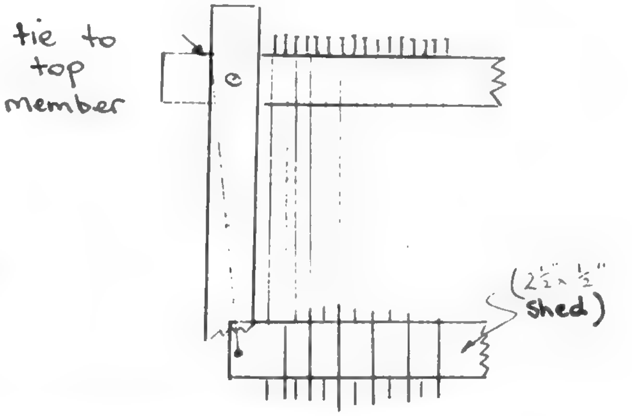
Weft ... any material or yarn woven in and out across the warp.

(1) Tie warp to bottom member. Take thread up to bar around first two nails and back down to bottom bar. Take the warp around the first two nails of the bottom bar. Continue until all nails on both bars are used.

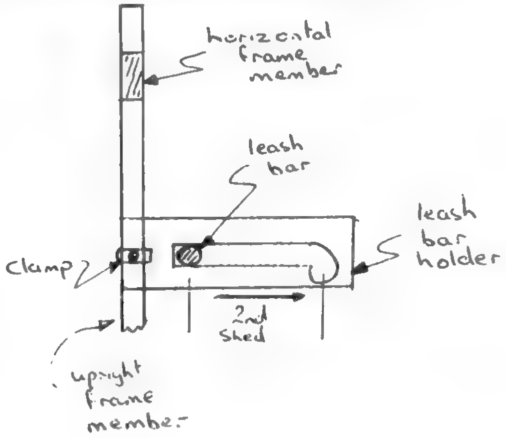


(2) Cut warp and tie to bottom bar.

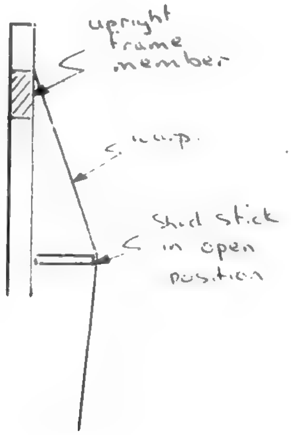
(3) Insert shed stick (2½ x ½in, 26ins long) by weaving in and out of warp. Tie each end to top bar.



(4) Insert leash bar into leash bar holders.



(5) Tie a piece of thread (strong) from leash bar to first warp thread that lies behind shed stick. While tying leashes, leash bar should be in the position shown.



Continue tying leashes to every second thread right across the frame. Note: only warp threads that pass behind the shed stick should have leashes tied.

(6) Frame is now warped up ready to start weaving.

WEAVING A NATURAL FLEECE RUG

(1) Cut a three inch wide strip of cardboard 23ins long.

(2) Open shed by turning shed stick on its side.

Insert cardboard and push down to bottom of frame. This gives a straight edge to beat the weft down on to.

(3) Close shed by laying shed stick flat and open other shed by pulling leash bar out to end of 'J'.

(4) Tease out some washed fleece and spread evenly along the open shed. Beat down with fingers (heavy rug beaters are available from Wheel and Loom).

(5) Change shed (back to step 2) and insert another row of fleece. Continue changing sheds and inserting fleece until 8 inches from top of frame.

(6) **FINISHING ARTICLE**

(a) Cut warp along top frame member and knot loose threads together in pairs.

(b) Cut warp threads along bottom frame member and knot as in (a).

(c) If heavy fringe is desired, knot lengths of fleece through ends of rugs.

Larger rugs can be made by sewing rugs together. Other articles that can be made on a frame of this size include: handbag, pillow covers (by sewing squares together), blankets, bedspreads etc. The frame is ideally suited for making tapestries.

For further information on spinning, weaving, macrame, broomstick knitting and so on, contact us at Wheel and Loom, Barnshaw Lane, Emerald, Victoria, 3782. Phone: (059) 68 4016.

Yours in craft,
MANDI & RON.

Bacteria versus cabbage moth

Bacillus thuringiensis, the naturally occurring bacterium which has had dramatic results when used against caterpillars, is now available in Australia in a form which may be used by gardeners interested in biological controls of plant pests.

Sold under the trade name 'Dipel', it is being marketed by the agricultural chemical division of Schering Pty Ltd. The group says that excellent results have already been achieved here against cabbage white butterfly, cabbage moth, light brown apple moth, vine moth and tobacco looper.

The spore-forming bacterium was first isolated in 1902 from dying silkworm larvae. It paralyses the gut of feeding caterpillars in the larval stages. The insects stop feeding immediately and die in a few days.

Though more than 110 species of the Lepidoptera (moth and butterfly family) are susceptible to Bacillus thuringiensis, it is highly selective and does not harm honey bees, ladybirds, parasitic wasps and other beneficial insects. Don't let your silkworms near it though!

Bacillus thuringiensis got its name in 1911 when some diseased flour moths were sent to a German scientist from a flour mill in Thuringia. It was developed by Edward A. Steinhaus, head of the laboratory of Insect Pathology at the University of California in the 1950s.

The commercial control agent, sold in the form of a wettable powder, is not harmful to animals, fish, plants or the soil. It can be used up to and including the day of harvest.

'Dipel' is sprayed evenly and completely on upper and under leaf surfaces. To control cabbage white butterfly and cabbage moth on cauliflower, cabbage and broccoli, Schering recommends applying at 4-8oz per acre in enough water to ensure thorough coverage.

Beatrice Trum Hunter in her book, Gardening Without Poisons, (Berkley Medallion Books, New York, 1971), suggests that Bacillus thuringiensis can be applied as a preventive by treating foliage as soon as it appears in spring.

She gives the following list of insects affected by the bacterium:

armyworm
cabbage looper
eastern tent caterpillar
salt-marsh caterpillar
walnut caterpillar
European corn borer
tomato fruitworm
grape leaf folder
tobacco hornworm
cotton leaf perforator
tomato hornworm
red-banded leaf roller
brown-tail moth
grape-berry moth
gypsy moth
orange-striped oak moth
artichoke plume moth
western tussock moth
celery leaf tier
fall webworm
sod webworm (lawn moth)
California oak worm
melon worm

The South East Queensland Goat Breeders Club was recently formed on the Sunshine Coast and is affiliated with the Goat Breeders Society of Australia.

Dr John Saville-Peck, president of the new club, sent us this report:

Mozart at Buck Palace

Our first activity was a kid and buck show at the Memorial Showground on Tamborine Mountain. Thirty-eight goats were shown and 50 people (apart from the owners of the goats) came to watch, although the weather was not very pleasant.

All were very interested and asked many questions about keeping goats and about goat products. Some tasted goats milk for the first time and were impressed by its quality and complete freedom from any unpleasant taste.

The club recently held a Field Day at which four lectures were given: 'What and how to give injections to goats', 'The importance of minerals in a goat's diet', 'How to give a drench' and an interesting lecture by one of Queensland's leading goat breeders, Mrs Dulcie Waldie, of Nambour, on the points of different breeds of dairy goats.

My wife, Rosalyn and I have kept goats for the past 2½ years. We moved to Queensland from Sydney and we have a small cottage on Tamborine Mountain.

We have converted a small dairy on the 2½ acre property to a goat house with ten individual stalls for our does, ranging in age from six years to 12 months. At present we are milking three, but in August and September six of our goats will be having their kids.

We have a buck of our own breeding who lives in a yard and house of his own, which we call 'Buck Palace'. We find keeping a goat stud both a productive and a delightful hobby. Goats have no vices and are the most intelligent and gentle of animals. Contrary to the general belief, they will not eat your hat or shoes unless starving. They are the most particular eaters.

Apart from the milk, we separate the cream and Rosalyn makes all the butter (which is pure white) and yoghurt. Goats milk is most health giving; the fat globules being about five times smaller than that in cows milk, therefore being much easier to digest.

It is of great benefit to those suffering from asthma, eczema and migraine attributed to an allergy to cows milk.

When we started our stud we wanted to name our goats with some distinctive collective name and have chosen the names of characters in Mozart's operas (both of us are very keen on music and opera). So we have Don Giovanni, our stud buck, Don Pasquali (sold to friends), Don Basilio (at present on loan), and our does — Contessa, Cherubino, Blonde and Elvira.

The walls of our kitchen are adorned with the ribbons which our goats have won at various shows. We shall soon run out of wall!

It is said that the goat is the poor man's cow. Poor he may be, but rich in the love and affection given by these delightful and productive members of man's domestic animals.

WASHING SKINS

BY MARJORIE TREASE

A good way to wash sheepskin mats.

Method: Make up a mixture of ½ packet Lux soap flakes, 2 fluid ounces of eucalyptus, one to 1¼ cups methylated spirits. Mix this all in a large dish, then bottle in a coffee jar or something with a good screw-top lid.

To use, dissolve one heaped teaspoon in hot water first, then make up to one gallon with cold water (so it is lukewarm).

Now shake and brush out the sheepskin mat, then put it into the soap mixture, wool side down (I find the bath a good place to do this). Leave to soak for about 10 to 20 minutes, then lift up and down. Try not to get the hide side wet.

You may have to use two or three lots of soap mixture to get it clean. **Do not** rinse but fold skin in half, wool side out and spin dry in the washing machine (if you have one). Hang in a warm, airy place to dry as quickly as possible. It is better done on a hot, windy day, out of the sun if possible.

Handle skin carefully while wet, or it could tear. If you hang it over the line to dry, move frequently to prevent ugly lines developing across the skin. This mixture is also good for woolly jumpers.

FRUIT & FLOWER WINE

BY TONY WEDD

Beautiful green glass hock bottles are thrown away: how our neolithic ancestors would have valued them!

Glass wine jars of ½-gallon size are thrown out by pubs, wine bars and restaurants. Grab any gallon jars you can get for free.

A plastic bucket, a four-foot length of plastic tube and a plastic strainer are essential gear for wine-making. Metals are to be avoided. Use enamel saucepans and a stainless knife for cutting fruit. Scald out all bottles and jars before use to destroy 'pirate' yeasts.

The first stage is to build up the vigour of the yeast or ferment, which requires sugar and oxygen. This is done in a plastic bucket, stirring in the air at least once a day with a wooden spoon, and covering with a cloth to keep out wine flies.

Fruits need to have a yeast supplied — baker's yeast will do. Flowers have their own yeasts and, as yeast is an organism, be sure to culture it at blood heat or thereabouts.

The second stage is to allow the yeast to break down the remaining sugar into alcohol and carbon dioxide. This is done in a glass jar, with air excluded, putting a tumbler over the top to seal out flies and yet allow gas to escape.

After bubbling ceases, allow sediment to settle and siphon out the clear liquid into bottles. Cork up and leave six months if you can.

Mulberry Wine: Mash 4lbs of mulberries in bucket. Pour on 1 gallon of boiling water, and stir in 3½lbs sugar till dissolved. Raw sugar makes stronger alcohol, white sugar keeps a better colour. Cool to blood heat and add 1oz of fresh yeast. Stir every day for 1 week, strain off and put into fermentation jars.

Lemon Wine: Grate 12 lemons, and juice them. No pith or pips to remain. Put in bucket and continue as above.

Mint Wine: Grate and juice 2 lemons, mash up 1½ pints of mint leaves and add ½ pint of cold tea. Put in bucket as above.

Elderflower Bubbly (virtually non-alcoholic): Put rind and juice of 1 lemon, 1 dessertspoon of cider vinegar and 1½lbs of honey in 1 gallon boiling water, stir and cool to blood heat. Then add 4 good heads of elderflower, picked in the sunshine before the florets start to go brown. Strain and bottle off next day, in screw top bottles. Ready in two weeks. If wanted for long storage, unscrew tops a little once a month and release the gas, or the bottles will break.

APRICOT WINE

Ingredients: 12lbs ripe apricots, 6oz sugar to every quart of liquid.

Mode: Wipe the apricots, cut them in pieces and let them boil in 2 gallons of water. After boiling up, let them simmer, till the liquor is strongly impregnated with the flavour of the fruit.

Strain through a sieve and put 6oz of sugar to every quart of liquor. Boil up again, skim very carefully, and as soon as no more scum appears, put it into an earthenware pan.

Bottle next day if it is quite clear and put a lump of sugar into each bottle. It should be a fine wine in six months.

Mrs Isabella Beeton, The Book of Household Management, Ward Lock & Co, London, 1888, 1644pp.

-grape

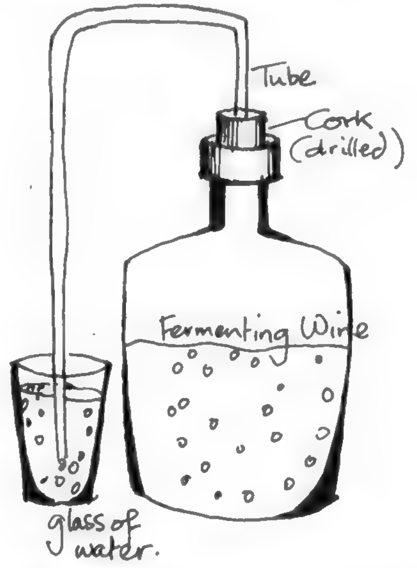
BY HUGH GOLDUP

I think my favourite wine is Cabernet Savignon dry red. I've made reds from Grenache, Black Muscat Shiraz and whites from sultanas, White Muscat and Walthams and also a sparkling white from pears.

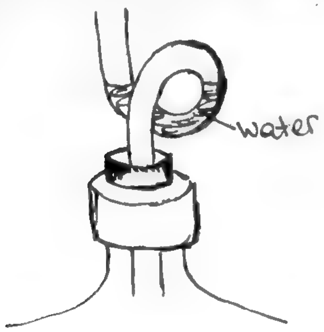
Grape wine is about the easiest of all, as the grape contains everything necessary for wine making, but I prefer to use a proper wine yeast which can be bought at health food shops. This is pretty cheap and once you get the wine fermenting, you can get a bottle of fermenting juice and put it in the fridge until you want to start another lot.

You should never bottle up the fermenting juice straight away — this is just asking for exploding bottles. If you want a sparkling wine, wait until the initial vigorous fermentation slows down and is nearly finished and then bottle.

With reds I crush the grapes into a clean (sterile) container — an old cement wash trough coated with beeswax and covered with cloth. This is stirred twice a day and left until I get what I consider is the right colour (which comes from the skins). Then I press out the juice. This goes into a barrel or other closed container, preferably glass, fitted with a fermentation lock which can be bought or made up.



Make sure the fermentation lock does not run dry, or the 'nasties' can get in. When fermentation has ceased, siphon off into bottles and cork — but it is better to keep the wine in large containers for about a year. Then siphon (rack) off into other containers every couple of months. This way you get rid of most of the sediment before bottling.



The skins (pomace) left after pressing are put back in the vineyard, as they are supposed to be rich in nitrogen and make good humus anyway. I keep a complete record of everything I do, including temperature and other weather conditions, also sugar content of the juice, measured with a hydrometer to the Baume scale.

Then, if the wine doesn't turn out too well, you can usually pinpoint the fault.

I'm going to make some rockmelon (cantaloupe) wine next week just as an experiment. We can get as many rockies as we want from the local packing shed in the form of culls. One local farmer feeds his pigs as a supplement to their normal tucker.

I made some pear wine two years ago, and most people who tried it liked it. The pears were very ripe and soft. They were pressed and the juice was allowed to ferment. When the fermentation was practically finished the wine was bottled. The result was a pleasant medium dry, white sparkling wine, which has to be poured out with care because of the sediment in the bottom of the bottle.

Diana has made honey mead, orange, lemon and apple wine and also carrot wine, which we haven't yet tried.

-beer

BY HUGH GOLDUP

2-3oz hops
4lb white sugar
4lb brown sugar
4lb malt
beer yeast

Boil hops on stove with about ½ gallon water for about 10 minutes. Dissolve brown and white sugar and malt with boiling water. Strain hops in sieve into sugar and malt.

Place all into 10 gallon fermenting vat and top up with water. Add yeast in vat when water is about 70 deg F. Bottle with one teaspoon of sugar in each bottle. Makes about five dozen.

BY HEATHER WALE

This is Ursula's beer — she's a friend of mine. The first brew might not be nice due to lack of practice.

Boil ¾lb barley and 3oz hops in a pillow slip for one hour in one gallon of water.

Meanwhile also boil 4 gallons of water and leave to cool.

Take out and drain the bag, discarding the hops and barley (compost heap?). Add to the brew 2lbs brown sugar, 1lb light malt, ¼lb dark malt.

Put the mixture, plus the boiled water into a fermenter. When cooled to blood heat (38 deg C, 98 deg F), add ½oz of yeast. Seal with air lock and leave for one week.

Bottle. Use bottles which have been well sterilised, adding one teaspoon sugar (heaped) per bottle. Cap bottles and leave for about three weeks. Cost: about $1.95 for ingredients.

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a relaxing hangout

BY SHAN CLIFTON

Hammocks are really simple to make.

All you need is:

1. A piece of really strong canvas.
2. Two pieces of dowel.
3. Something to make holes in the dowel.
4. Something to sew the edges of the canvas.
5. Two lengths of super-strong twine.

Right, now —

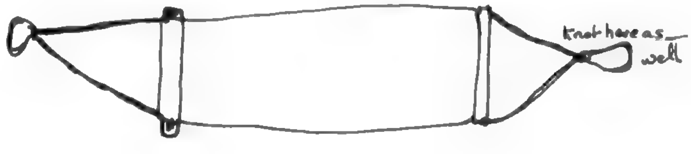
Firstly cut two pieces of dowel, each one inch in diameter and 18 inches long. Drill a quarter to half-inch hole at each end.

Then sew the ends of the canvas, leaving a casing 3 inches wide so that you can fit the dowel through.

The canvas should be about 2½ to 3 yards long and about a yard wide.

Now put a dowel through each end and take about 15 feet of really strong rope that will fit through the holes drilled at each end of the dowel. Cut the rope in half and thread the ends through the holes, tying one or two firm knots so they stay there.

And there you have it . . . I hope.



WALT WHITMAN

Behold this compost! Behold it well!
Perhaps every mite has once formed part of a sick person — yet behold!
The grass of spring covers the prairies,
The bean bursts noiselessly through the mould in the garden,
The delicate spear of the onion pierces upward,
The apple-buds cluster together on the apple branches,
The resurrection of the wheat appears with pale visage out of its graves.
What chemistry! That the winds are not really infectious,
That all is clean, forever and forever,
That the cool drink from the spring tastes so good,
that blackberries are so flavorous and juicy,
that the fruits of the apple-orchard and the orange orchard,
that melons, grapes, peaches, plums, will none of them poison me.
That when I recline on the grass, I do not catch any disease.
Now I am terrified at the Earth, it is that calm and patient,
It grows such sweet things out of such corruptions,
It turns harmless and stainless on its axis, with such endless
succession of diseased corpses,
It distils such exquisite winds out of such infused fetor,
It gives such divine materials to men, and accepts such leavings
from them at last.
WALT WHITMAN.

Organic farming is the growing of crops in soil rich in organic matter, without the use of synthetic pesticides, fertilizers or chemicals. The soil may be enriched by compost, mulch, or by the addition of natural mineral fertilizers and other natural substances.

Food grown organically is not treated or processed unnaturally after harvesting. Meat, milk, eggs, cheese and honey may be fairly termed organic:

If the animals have been maintained in an area where grasses, feeds and water supplies are free from synthetic pesticides and chemicals.

If no artificial growth stimulants, hormones, drugs or antibiotics have been given to the animals.

If no chemicals or artificial preservatives have been added to the food produced.

What's in a name? Many people object to the word 'organic' as applied to farming and gardening. For the sake of uniformity we prefer it, as the term has been adopted throughout the world.

But if you wish to call it compost farming, the New Agriculture, eco-farming, natural farming or conservation farming, it's all the same to us.

We agree with Australia's own Mr P. A. Yeomans, when he says in The City Forest (1971): "The best way to make soil fertile is to follow the way of Nature and hurry it up a little."

Confusion over the term 'organic' is usually caused by its association with the word as applied in chemistry to denote compound substances containing carbon molecules. This would mean that a desk, a rubber tyre and even DDT are chemically 'organic'!

As long as organically-grown food is food which does not harm the land and which makes people healthy we are happy with the definition.

Organic Farming

Less than one-fifth of the earth's surface is covered with topsoil which can grow food.

Even that scant area is being gobbled up daily by the buildings, factories, housing developments, new roads and airports of our expanding cities.

Soil is at the base of the complex pattern of life here on Planet Earth. Yet we exploit it and allow its fertility to be eroded. We pollute the air we breathe, the water we drink and the soil which produces our daily food with our man-made poisons.

We have lost touch with the dirt and mud our ancestors felt beneath their bare feet when first they walked the forests and plains. We have grown away from the earth.

Soil is alive. It's animal, mineral and vegetable. The decay of organic matter provides the food which gives life to the teeming bacteria in the soil. Good soil also has abundant minerals in the form of rock particles.

The principle behind organic farming is that healthy plants can come only from healthy soil and that healthy animals are those raised on lush pastures grown on fertile soil. Healthy plants are said to resist insects and disease.

Farmers have a responsibility to the earth and to the generations which will follow. They are its caretakers. Organic farmers seek to live in harmony with the ecology, farming not just in imitation of nature, but in harmony with it.

But the fertility of the world's topsoil is declining, through mismanagement, overdosing with chemicals and the burden placed on the land by fast growing urban populations.

Monoculture, in which large areas of land are given over to a single crop, is land rape. It leaves plants open to massive attacks by insects. In nature's agriculture mixed crops and mixed farming are the rule.

Mixed culture prevents epidemics. Insects and fungi merely remove surplus and weak plants. "The greatest virtue of the old-fashioned farms," wrote J. I. Rodale, populariser of organic growing in the United States, "was that they were self-contained and had a balanced complement of both crops and livestock."

Before the 1850's there were no chemicals used in agriculture. Farming was carried out using the traditional methods developed by landsmen over thousands of years.

In 1840 Justus von Liebeg put forward the simplistic theory that plant matter consisted only of the elements left in the ash after burning, namely nitrogen (N), phosphorus (P) and potash (k). The scientist did not take into account trace elements, mychorrizal association, earthworms, fungi, the 'life force' of vegetation and the vital biological life of the soil.

From the ashes of von Liebeg's experiments arose the chemical fertilizer industry and the NPK mentality, a school of belief which held that all the soil needed was artificial solutions.

Today we can easily see the effects of this misuse of our environment, or read about it in such books as Silent

All the human and animal manure which the world loses, restored to the land instead of being thrown into the water, would suffice to nourish the world.

VICTOR HUGO, Les Miserables.

The maintenance of the fertility of the soil is the first condition of any permanent system of agriculture. In the ordinary processes of crop production fertility is steadily lost: its continuous restoration by means of manuring and soil management is therefore imperative.

SIR ALBERT HOWARD, An Agricultural Testament (1940).

If the soil does not have it in it, plants that grow there do not, or the animals that eat those plants, or the people who eat those plants and animals.

ROBERT FLAHERTY, in his film, The Land (1942).

If you can't walk comfortably over it barefoot, even though you never went barefoot in your life, it isn't real soil. If you can't pick it up in handfuls, without effort, it isn't real soil. If you have to dig to loosen it, it isn't real soil.

EDWARD FAULKNER, Ploughman's Folly (1943).

If we destroy our soil — and it is not indestructible — mankind will vanish from the earth as surely as has the dinosaurus.

LADY EVE BALFOUR, The Living Soil (1943)

Chemical fertilizers are a form of dope or soil stimulant and can be compared to the taking of medicines. They do not produce basic soil health.

Many sensible people are now learning to stay away from tonics, vitamin pills and medicines and to depend rather on a varied diet of fresh natural foods; but too many farmers do not treat their land as a living, vital organism.

J. I. RODALE, Pay Dirt (1945)

Spring.

DDT is now banned in many countries. But worse chemicals, such as the chlorinated hydrocarbons, are still in everyday use. Aldrin, dieldrin, endrin, heptachlor and toxaphene never lose their toxic capabilities. They run off the fields into streams, deposit at river mouths and fill up in bays and harbours.

Hormone sprays kill beneficial ladybirds, earthworms and bees as well as aphids. Sprays applied in Texas are found to fall out in rain over Ohio. Why poison your food? There are no chemical sprays or fertilizers used in organic farming.

Compost is the key to natural soil enrichment. The best known systems of compost-making are the Biodynamic (Rudolf Steiner), the Indore (Sir Albert Howard), Quick Return (Miss Maye Bruce) and the more recent 'fast' 14-day composts which utilize shredded organic matter.

Sir Albert Howard, British agronomist to the Indian State of Indore from 1924-1931 first described the Indore composting method in his book The Waste Products of Agriculture (1931) and expanded on it in his famous work, An Agricultural Testament (1940), the 'bible' of the organic method.

It has two main principles: (1) The admixture of vegetable and animal wastes with a base for neutralising acidity, and (2) The management of the mass so that the micro-organisms which do the work can function in the most effective manner.

The method is described in EG 3.

Humus, the dark-earthy mould of well-rooted organic matter, is the end result of making compost. Sir Albert Howard gave it this more exact definition:"Humus is a complex residue of partly oxidised vegetable and animal matter, together with substances synthesised by the fungi and bacteria which break down these wastes."

In 'orthodox' farming, the plant is fed directly with artificials and livestock largely with feed concentrates. The soil is denigrated to the status of a medium — its function being only to hold the plant in position and retain the chemicals applied. Chemicals tend to produce insoluble salt residues detrimental to fertility.

Organic farming makes use of compost, shallow cultivation, liming, manuring, mulching, crop rotation and leys planted to herbs and legumes and renewing the soil and maintaining its health.

Finished compost contains the mixture of sand, silt and clay which was in the original mixture, plus stabilized humus. A further part is made up of living organisms, bacteria and low animals. Part of these will continue to grow and propagate when incorporated in the soil.

The added humus improves the structure of the soil and its capacity for holding water and nutrients. The soil will become easier to work.

Organic substances found in the soil include many enzymes amino acids, organic acids, vitamins B1, B2 and B12 and biotins. In aerobic compost (open to the air and airborne bacteria) antibiotics have been found to stay active in the soil for two to six weeks. These play a protective role in the health of plants.

A trace element deficiency will seldom show up in well-composted soil. Compost is the best possible complete fertilizer for plants and pastures, orchards and market gardens.

Lastly, we should mention that there is today a good market for organic produce. The demand for such food far exceeds the supply.

Compost making in India in the rainy season, from The Waste Products of Agriculture (1931).

Grow with nature

'Muck and magic' isn't good enough in organic farming.

Composting applies nature's law of returns, so that the soil has an adequate amount of freshly prepared humus.

Efficient crop management, water control, mineral applications, crop rotation, biological control and green manuring are necessary. Organic farming needs to be just as 'scientific' as the systems developed by agribusiness. It isn't 'lazy farming'.

The following are some of the proven methods of farming with nature:

FARM COMPOSTING: On the farm, compost may be made in long rows, 6 feet high and 6 feet wide, 8 to 10 feet or longer and ridged at the top to prevent leaching by rain.

Build up as in the Indore method, with alternating layers of about four inches of different materials. Coarse matter such as straw, should be thoroughly wet, or soaked in liquid manure. The heap may be sprinkled with lime, or with animal urine as it is built up. All types of manure may be added.

The labour of making compost should not be regarded as extra work on the farm. It is the essential basis for growing all crops and pasture, so compost making should be a regular part of your routine.

Materials may be dumped from a truck, trailer or spreader and built and turned with a front-end loader (or a pitchfork). When the stack is completed, it may be aerated by thrusting in a wooden stake or iron bar three inches in diameter at three feet intervals. A few handfuls of compost from an old heap will make a good 'starter' for the new one.

SPREADING COMPOST: J. I. Rodale suggested that well-rotted compost be spread 10 tons to the acre for several years. When the soil is sufficiently enriched, this could be reduced to five tons.

Spread on a cloudy day (sun will dry out the compost) and plough or disc under as soon as possible. It takes about two cubic yards of compost to make up a ton.

COMPOST CROPS: If you are short of materials for compost making, these can actually be grown on the farm. Sow legumes like fenugreek, lupins, and peas, grains such as millet, oats, rye, corn, maize, grasses like clover and lucerne, also comfrey and sunflowers.

Decayed leaves and weeds like dandelion and bracken may be safely added, also seaweed, sewage sludge, wood ash and sawdust.

GREEN MANURING: Sheet composting or green manuring will improve the soil over a number of years. Green crops, such as grasses and legumes are turned under the topsoil with a rotary tiller to introduce organic matter.

The term is also applied to the spreading and discing into the earth of animal manures, bone meal, tankage or phosphate rock. For the best results, turn over three weeks before planting.

LEY FARMING: In ley farming, mixtures of grasses, clovers and herbs are grown for hay or grazing, or as part of a crop rotation plan. Leys are 40 per cent more productive than permanent pasture. When leys show signs of deterioration they are ploughed in and corn is planted.

ORCHARDS: Spade in well-rotted compost around fruit trees about a foot from the trunk to a foot beyond the branch dripline.

A compost heap may also be built under the tree to save time. Lay as a mulch to about three feet high, applying the raw materials in layers.

Stone mulch under fruit trees warms the earth and allows bacteria and earthworms to breed prolifically, while minerals are leached into the soil by rain.

Here stone mulching is combined with trickle irrigation in a hillside orchard outside Sydney

CROP ROTATION: The most primitive crop rotation was 'corn, corn, fallow'. Fertility was exhausted by the two corn crops and restored by a fallow period of several years.

The four-course system introduced the root crop as a soil cleanser and ran: 'roots, barley, seeds, wheat'. Modern farming has developed many variations, such as 'roots, barley, seeds, oats, potatoes, wheat'. Whatever the cycle chosen, it should contain one legume, one deep-rooted crop such as alfalfa, and a root crop.

LIME: Lime in the form of crushed limestone or dolomite provides the calcium and magnesium so deficient in Australian soils and improves the soil texture, particularly in clayey areas.

A ton per acre per year is advised, Most commercial crops, such as wheat, corn, tomatoes, grapes, millet, oats, barley, apples and peaches, prefer a slightly acid soil with a pH value of 6.5-6.8. A soil test is always worthwhile. It will show up any deficiencies in your soil.

LIQUID MANURE: This is a valuable fertilizer, very rich in nitrogen, but so potent that it should be diluted in the proportion of one part to 20 parts of water.

In the orchard, liquid manure should be applied to fruit trees at the rate of 1-2 gallons fortnightly (diluted) per tree, but not until the fruit is swelling.

Do not use it to feed seedlings, young plants, peas or beans. Never apply in a spell of drought without first watering plants well. It is best used on cabbages and other members of the brassica tribe, after they have passed the seedling stage, half a pint per plant (undiluted) every ten days.

To make a good liquid manure brew, place manure of one type — sheep, cow, horse or fowl, but not mixed — in a sugar bag and suspend in a wooden barrel or 44-gallon drum of water. Stir every day for a week and use when the liquid has the consistency of weak tea.

A shovelful of soot may be placed in the bag with the manure and will add ammonia, calcium, potassium and magnesium.

Drainage from stables and piggeries can be similarly infused and is rich in ammonia and alkaline salts. Either type of liquid manure may be given undiluted to fruit trees in winter, thrown on ground to be used for spring planting, or poured over the compost heap.

Our sawdust compost was largely the result of an accident.

For some years we watched the valuable urine in the cowshed running down the drain and we wondered how this waste could be avoided without a liquid manure tank and extensive alteration to the drains.

A visit to a butcher one day gave us the clue. We noticed that it was customary to spread sawdust all over the floor and we thought we would try the effect of this in the cowshed. It was an outstanding success.

The cowshed is a milking parlour handling 24 cows. It has the usual wide gutter below the channels leading from it to external gullies and thence to the drain. The procedure now carried out is as follows:

After each milking, when swilling down has been completed, the entrance to the channels is blocked with small heaps of sawdust and left ready for the next milking period. These blocks soak up every drop of urine and prevent it going down the drain. When the cows have been turned out after milking, sawdust is spread over the area, gutter and floor to soak up any urine and dung; the floor is then swept, the dung is shovelled into a barrow and wheeled off to the manure heap.

No special care is taken in making the heap: it is piled up without any green material, earth or lime. It is not turned or watered; but as the heap is not covered it obtains naturally all the moisture required. Great heat is generated. The wet sawdust seems to break down the straw and solid matter more quickly than any other medium. The heap is left to accumulate all through the winter until early spring, by which time it has been transformed into rich black humus abounding with myriads of tiny worms; it is very friable and the front end loader has to be used to shift it.

Reprinted from Good Earth, the quarterly magazine of The Organic Farming & Gardening Society (Aust), Vol 26, No 4 (Oct-Dec, 1973).

The menace of monoculture

BY KENNETH MORRIS, BSc, PhD.

Increasing mechanisation on farms, particularly in Britain, has led to vast areas of monoculture, vast unbroken areas of land where only one crop is grown. From the banker's point of view this may be sound in theory but to the husbandman it presents many problems — for Nature always prefers variety, whether it be agriculture, horticulture or silviculture.

In Cornwall, my home of yesteryear, our patchwork of fields, enclosed by thick, protecting hedges, our deep coombs with their steep, wooded sides, still hold Britain's richest soils and pastures — Cornish cream and pasties me dears! We don't top-dress, we never spray, as is the constant need in those bare midland and East Anglian acres. Hedges and copses resound with birdsong, spelling out the rich and varied fauna, the streams run crystal clear through meadows which are a mosaic of wild flowers in Spring, Summer and Autumn.

This is a 2000 years old tradition. The pattern of tiny Celtic fields is still there, and of Saxon strip cultivation, each strip a different crop, barley, roots, flax, beans. Such variety and rotation is our safest insurance against disaster today.

Introduce monoculture, and one introduces trouble. The starvation of the Irish potato famine, direct result of reliance on one staple crop. Scotland's Highlands and islands suffered the same fate. Under the Austro-Hungarian monarchy immense areas of monoculture forest were planted, pine, spruce and fir. Within half a century they were being devastated by insect or fungal pests. I have seen hundreds of acres of pine, looking like a forest of bare ships masts, the needles stripped by mass attack of sawflies.

The old German and Austrian foresters understood and loved their trees, their eyes saw more than quick cash returns. They didn't spray, they used Nature's own methods of control.

In the Forestry Institutes of Dresden, Munich, Prague and Vienna, teams of specialists studied insect parasites and predators, even bacterial diseases of the forest pests, worked out methods for their propagation and liberation in the stricken forests. They filled the woods with nesting boxes for that valiant army of insectivorous birds which found no breeding sites in the serried rows of monoculture forests. Above all they broke their gloomy, sterile monotony by introducing mixed woodland, different species, varying ages. They had the key ecological formula, variety equals stability.

"But forests must be put to the service of man," we're told. What a stupid remark! — devoid of ecological understanding.

Let me list ten ways in which our forests, particularly those lovely stretches of indigenous native species, already serve man, and our whole planet.

1. They play a big part in supplying oxygen to the atmosphere and removing carbon dioxide.
2. They are continually building new material from solar energy, minerals, water and carbon dioxide, by photosynthesis.
3. They enrich the soil through their deep root system, bringing up minerals from subsoil, distributing these in leaf mould and litter.
4. They protect slopes from erosion.
5. They conserve water on head-waters and watersheds.
6. They afford habitats for beneficial mammals, birds and insects (pollinators as well as parasites and predators).
7. Their richly varied flora is a source which plant-breeders, unconsciously, draw upon for finding new varieties, resistant strains etc, ie they act as "gene banks".
8. As wind-breaks they protect adjoining land and materially increase its productivity.
9. They definitely influence local climate, decreasing drought, increasing rainfall.
10. They have an aesthetic value, especially in the neighbourhood of cities, which can never be expressed in dollars.

Self-regulating biological mechanisms giving varied ecosystems their stability, have been developing, by Nature's trial-and-error methods, for at least 600 million years, since life first appeared. Even when man started cultivating crops and domesticating animals, some 10,000 years ago, the impact on his environment was small. The forms of husbandry which evolved, using natural means of fertility, set in a richly varied countryside with its complex of predatory and parasitic fauna at hand to check undue outbreaks of pests, were in operation when British and European agriculture reached its zenith 200-100 years ago, when its methods spread to the four corners of the globe, its bloodstock, grains, fruit trees and vegetables were sent to every dominion and colony.

Disaster came with the replacement of this pattern by monoculture, vast acreages of a single crop, mechanically cultivated, yields boosted by chemical fertilisers. America's dustbowls, the East African groundnut fiasco.

Disaster did not occur with primitive tribes continuing age-old practices. Without a tractor, with no drop of artificial fertiliser or spray, the Hausas grew terrific crops of groundnuts in Northern Nigeria.

New Zealand is dangerously near to monoculture mania, with great, almost treeless areas of grain or rye-grass-clover pasture, suffering drought and grass grub devastation in Otago and Canterbury. What a welcome relief where enlightened farmers refuse the lure of quick returns offered by fertiliser firms with their easy-to-follow NPK formulations. Natural methods demand thought and care, but they pay.

John Scott's farm at Hawarden stands out as a green oasis in Canterbury, a living example of the value of variety. In every gully and stream he has planted trees.

Besides manure, compost and straw-mulches on the paddocks he has developed a rich herbal ley, three species of clover, four of grass, chicory, plantain and lucerne. All occupying different niches, tapping different strata, the deep rooted bringing up nutrients from lower levels. His stock flourish on this mixture, getting all the elements they crave, including elusive enzymes, vitamins, amino-acids and antibiotics. His grain-yields are above those of his neighbours, who use superphosphate. He grows worms, instead of grass grubs.

Natural Controls Best

Natural control of grass grubs, army worm and porina can be watched on the Canterbury plains, with gulls, oystercatchers, magpies and starlings working the ground on a definite pattern, the larvae coming under attack at different levels, the mature insects exposed to hedgehogs at night. The incredible folly of spraying with DDT and Fensulfothion, which took heavy toll of these unpaid, round-the-clock workers and hardly affected grass grub populations, indicates the ignorance of chemical control exponents.

In the Bay of Plenty, Field Candy notes that, since the advent of DDT, we no longer see the huge flocks of starlings which used to keep the pastures free of pests.

In America's southern states, malaria was kept under close control by provision of roosting places for bats, devourers of Anopheles mosquitoes, until DDT arrived.

The effects of DDT type insecticides are bad enough on birds, on beneficial insects they are worse:

Parasites and predators, Ichneumons, mites, ladybirds, lacewings, spiders, a host of others, more sensitive than the target pests, are wiped out, leading to the latter's unchecked increase.

Target pests, of every species, soon develop resistant strains, which must be met with new and more lethal sprays; fine for Big Business, fatal for the farmer's purse and for his sensitive soils.

Pollinating insects may be suffering untold damage — we know of reductions in bees. What about the two or three hundred other species upon whose essential services natural propagation of wild and cultivated flora depends?

This whole complex and fascinating subject, which has been under study by DSIR in Nelson for 50 years, is by no means beyond individual abilities of farmer, horticulturalist or backyard gardener. A great deal can be done to encourage parasites and predators by provision of suitable habitat, particularly a variety of spring, summer and autumn flowers and winter-flowering shrubs and trees, with their honey and pollen for food. Brussells Sprouts and cauliflowers, under sown with clover, have shown higher yields, due to reduced attack by cabbage-root fly.

There are great opportunities in the cultivation of plants containing pest repellants or insecticides. A whole range of exotic plants provide insecticides quite as effective as the synthetics. Some are superior to better known derris, pyrethrum and nicotine; all are harmless to the environment.

Within everybody's range are such as the marigolds, nasturtium and the onion family. A species of Marigold was used in pre-Mayan civilisations for protecting crops and stored grains. African and French marigolds today are interplanted in orchards and gardens with great benefit. So are a number of other flowers and herbs. Flowering onions, Alium, grown among roses, are both decorative and repellent to aphids.

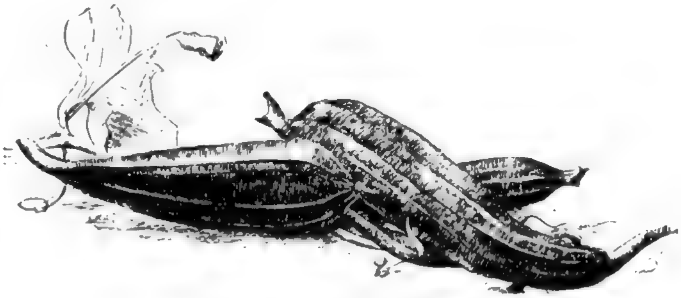
Garlic is comprehensive and impressive. Medieval claims for its medicinal properties are justified by recent medical research, proving its effectiveness as bactericide, antibiotic and in relieving angina. Interplanted with vegetables, it deters beetles, slugs, eel worms, carrot fly. As a spray it rivals DDT yet is harmless to ecosystems. Soak three ounces of chopped garlic in two spoonfuls of mineral oil (toilet paraffin), emulsify with oil-based soap, store this concentrate in glass bottles (not metal). Diluted with water, say 1 in 100, you have a spray that is 85-98% lethal to wire worms, crickets, slugs, grass grubs, onion fly, carrot fly, cabbage root fly and many caterpillars.

These things we all can do, thus working with Nature — not against her.

The Menace of Monoculture is reprinted from Soil and Health, for June-July, 1973. Soil and Health is the official journal of the Soil Association of New Zealand and regularly features articles on organic farming.

The Journal is issued free to financial members. Annual subscription is $NZ2. Send to: Business Manager, 875 Ferry Road, Christchurch 2, New Zealand.

loofah



The loofah, or dishcloth gourd.

You can grow your own absorbent sponge to use in the bath or as a dishcloth.

It's the ornamental gourd LOOFAH or LUFFA, known also as the 'vegetable sponge' or the 'dishcloth gourd'.

EG reader Hetty Siefken of Stratford, Queensland, has had great success growing loofahs and recently sent us one as a gift. Thanks Hetty!

The loofah is a quick growing annual curcubit. Give it a trellis or something to climb on. The fibrous material inside the ripe fruit is dried to make a cloth-like sponge.

"The young fruits and leaves can be cooked and eaten as a vegetable," Hetty tells us. It is reputed to be a blood cleanser and good for the kidneys.

Drying: "When the fruit starts to turn yellow I pick them off," Hetty says. "I take off the skin, shake out the seeds and soak the sponge in clean water for one night.

"Dry it in the sun the next day and you have your sponge".

Seeds are available from the New Gippsland Seed Farm, Queens Road, Silvan, Victoria, 3795.

COMPOST for the FARM

REPRINTED FROM ORGANIC GARDENER AND FARMER (No. 9)

Do you consider compost-making a waste of time?

Mr T.. J. McCall of Cressy, an expert on large scale composting, wants to see farmers recycling their damaged fodder by this quick return method. In many parts of Tasmania's farming community, large amounts of damaged fodder are wasted each year because growers don't know how to use it.

Straw mulching is a usual practice for utilizing some of this waste; however, thick straw mulches have a slight tendency to rob the soil of nitrogen when first applied. With even **partial** breakdown, as in composting, the soil benefits immediately.

Market gardeners and orchardists who want to build up their soil fertility could also take heed.

Any farm fodder can be used, with vegetable trash added if available. Animal manure is naturally, the ideal activator for composting, because of its dense population of micro-organisms to effect rapid decay.

The McCall Method

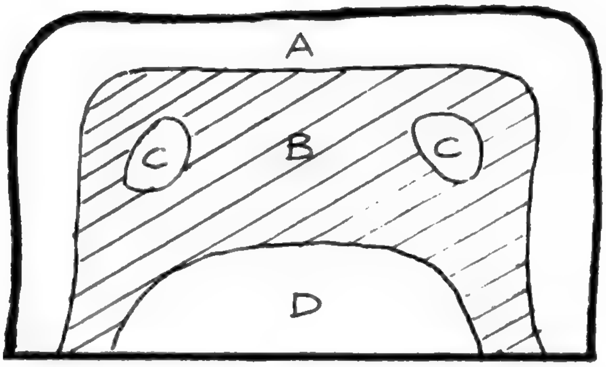
Thoroughly wet about 100 bales of damaged wheat hay. (One ton of dry straw requires up to 1000 gallons of water, so you may have to wait for a decent cloud burst). Wheat straw is preferred for this purpose: its toughness helps to give the right amount of aeration between turns.

Mr McCall's heap was 60 feet long, 7ft wide and 5ft high, making 20-25 yards of finished compost.

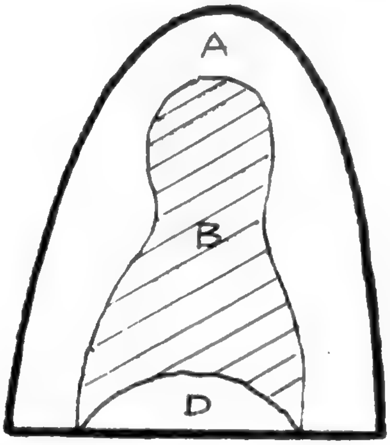
In the making it is sprayed with pig effluent and dusted with gypsum. Gypsum acts as a safeguard against greasy fermentation, and it is especially useful if large amounts of animal manure are used. An occasional turning is important to ensure dispersment of air throughout the stack and thus prevent damage through anaerobic fermentation.

Organic Gardener and Farmer is the bi-monthly journal of The Organic Gardening and Farming Society of Tasmania. This is a well-produced newsletter, with regular organic farming hints and stories. To subscribe, send a $2 postal note to: The Editor, David Stephen, 12 Delta Avenue, Taroona, Tasmania 7006.

COMPOST FIGURE 1



COMPOST FIGURE 2



LAMBERT'S EXPERIMENT

COMPOSTING EFFICIENCY

(A)	Aerobic	110°F (or less)
(B)		120°F – 140°F
(C)		150°F – 170°F
(D)	Anaerobic	100°F – 120°F

Zone (B) represents best conditions for composting.
Zone (C) is undesirable. This is eliminated in narrow rounded heap.

Although Figure 1 is almost twice the size of Figure 2, the ideal aerobic zone is the same size.

sources

Probably the best (and most recent) all-round introduction to organic farming and the reasons behind it is: The Basic Book of Organically Grown Foods, by the staff of Organic Gardening and Farming magazine, edited by M. C. Goldman and W. H. Hylton, Signet paperback, 1937, 336pp.

Dozens of books on the subject have been published and the list below is more of an essential reading summary than a comprehensive bibliography:

The Waste Products of Agriculture, Their Utilization of Humus, Albert Howard and Yeshwant D. Wad, Oxford University Press, London, 1931, 167pp. First outline of the Indore method of composting.

An Agricultural Testament, Sir Albert Howard, Oxford University Press, London, 1940, 253pp. Must be read. The book describes the Indore process at work with coffee, tea, sugar, cane, sisal, maize, rice and vineyards.

The Living Soil, Lady Eve Balfour, Faber and Faber Ltd London, 1943, 248pp. Links the incidence of bad health and illness to the deteriorating quality of food, the soil and processing.

Pay Dirt, Farming and Gardening with Composts, J. I. Rodale, The Devin-Adair Co, New York, 1945, 242pp. This book introduced the 'organic revolution' to the United States.

Compost for Garden Plot or 1000 acre farm, F. H. Billington, (revised by Ben Easey) Faber and Faber Ltd, London, 1956, 104pp. The whole spectrum of composting methods for gardens and farmers.

Common-Sense Compost Making, by the Quirk Return Method, Maye E. Bruce, Faber and Faber Ltd, London, 1967 (first published 1946), 95pp. An exciting book on compost. Maye Bruce details her experiments in her beautiful Cotswold gardens and gives the recipes for her famous QR activator, made from herbs and weeds.

See also: Modern Humus Farming, Friend Sykes (Faber) 1959, Organic Farming, Hugh Corley (Faber) 1956, Humus, Origin, Chemical Compostion, and Importance in Nature, S. A. Waksman, Practical Organic Gardening, Ben Easey (Faber) and The Compost Gardener, F. C. King etc.

* * *

An Agricultural Testament is available at $8.45 and Pay Dirt at $6.55 (add 50 cents each for postage) from Soil & Health Publications, South Warrandyte, via Ringwood Victoria, 3134.

Many other relevant books and leaflets are available from Soil & Health Publications, which is owned and operated by the Organic Farming & Gardening Society (Aust). Send a 7 cent stamp for the 1974 book list.

Send two 7 cent stamps for a sample copy of Good Earth, the Society's quarterly magazine on organic farming and gardening.

Membership of the Society is $3 for metropolitan areas and $2 for countrysiders and includes a subscription to Good Earth. Write to the Secretary, Box 2605W, Melbourne, Victoria, 3001.

The Soil Association (South Australian Group): This is an Australian branch of the British Soil Association. Membership costs $1 and entitles members to attend quarterly field days or meetings and receive the quarterly newsletter. Write: The Secretary, 9 Cotham Avenue, Kensington Park, SA, 5068.

Membership of the parent British group is obtained by forwarding $6 to the ANZ Bank, King William Street, Adelaide by cheque or money order made out to the Soil Association Account No 74-07110. Members of this body receive The Soil Association, a monthly journal of about 30 pages, of interest to organic gardeners and farmers.

* * *

Mineral Fertilizers Ltd carries out soil and rock analyses and stocks a large range of mineral fertilizers sold in bulk or in bags. Minerals may be used for grazing or irrigated pastures, wheat, oats, and barley, citrus, vines, sugar cane, tropical fruits, oil seeds, soybeans, lupins, nuts, forestry and vegetable and home gardens.

Interested farmers should send 7 cents for the leaflet: Has Super Let You Down and details of prices to: Mineral Fertilizers Pty Ltd, PO Box 1, Pooraka, SA, 5095.

The PEN (Pollution Ecology Nature) newsletter is available monthly from the same address. Subscription $1.50 per year, including postage.

* * *

SEAWEED: Seaweed is a natural fertiliser and makes an excellent mulch or compost material if available raw. Seaweed meal is used as an animal feed, valued for its wide range of minerals, trace elements, amino acids and vitamins (including B12 and E).

Liquid seaweed fertiliser is usually recommended as a fine soil builder for use in changing from a chemical to an organic farming system. It is a blend of seaweeds in concentrated form — a quart will treat an acre for a whole growing season.

If you would like to try it for yourself, Hutchase Enterprises are currently offering a special trial for EG readers of their SM3 seaweed plant nutrient at $3.75 post paid for a one quart bottle. Write to PO Box 53, Cremorne 2090.

* * *

ORGANIC FARMERS

The Organic Food Movement is establishing a grower's register which will set standards required for organic growers in South Australia, who will be able to use a ladybird symbol on their produce.

For information write to the Secretary, Harold Pettman, PO Clarendon, SA, 5157.

* * *

The Organic Growers Association of NSW meets on the first Monday of each month at Leigh Memorial Church Hall, rear 119 Macquarie Street, Parramatta (8 pm).

For information write to the Hon Secretary, Josephine Richardson, 'Sahara Farm', Kenthurst, NSW, 2154.

* * *

In EARTH GARDEN 10 we hope to list again the addresses of suppliers and growers of organic produce and outlets where organic fruit and vegetables may be purchased. We would like to hear from any growers wishing to sell produce direct to the public.

Farmers of 40 centuries

When Dr F. H. King made his 'grand tour' of the Orient in the first decade of the 20th century, he saw the ancient lands of China, Korea and Japan as no ordinary traveller saw them.

As the former chief of the Division of Soil Management of the United States Department of Agriculture, he observed the fields and crops, farm buildings and canals, talked to farmers and took hundreds of photographs.

The result, in 1911, was the publication of this classic work which set out to study the methods used to cultivate the same fields for 4000 years without any loss of fertility. The book was to influence many leaders in what has since been termed the 'organic' farming and gardening movement.

To the Chinese and Japanese there was no need for a label to describe the everyday toil of farm maintenance as they grew two, three and even four crops each year on the same plot of ground — year after year.

Sir Albert Howard has this to say about them in his book, An Agricultural Testament (1940): "In China a nation of peasants has worked out for itself simple methods of returning to the soil all the vegetable, animal and human wastes that are available: a dense population has been maintained without any falling off in fertility."

Dr King describes in detail the Chinese systems of intensive agriculture in which nothing is wasted. Fields were carefully terraced so that there was little erosion. Silt carried into the numerous canals was scooped up and put back on the fields or pit composted with clover. All plant, animal and human wastes were returned to the land.

Human wastes were highly prized. "The International Concession of the city of Shanghai, in 1908, sold to a Chinese contractor the privilege of entering residences and public places early in the morning of each day in the year and removing the night soil, receiving thereof more than $31,000, gold, for 78,000 tons of waste", Dr King reports.

His vegetative eye ranged wide, taking in the methods of making mud bricks and mud-thatched millet roofs, the utilisation of all wastes, fish culture, the prices of vegetables in the market and Japanese furnishing.

He discoursed on irrigation methods and even the absence of flies. "One fact we do not fully understand is that, wherever we went, house flies were very few", he reported and reasoned that this was due to the "scrupulous husbanding of waste refuse" in the Orient.

The style may be quaint, but the message remains modern. China today continues with a similar emphasis on agriculture, with 90 per cent of its huge population engaged in primary production.

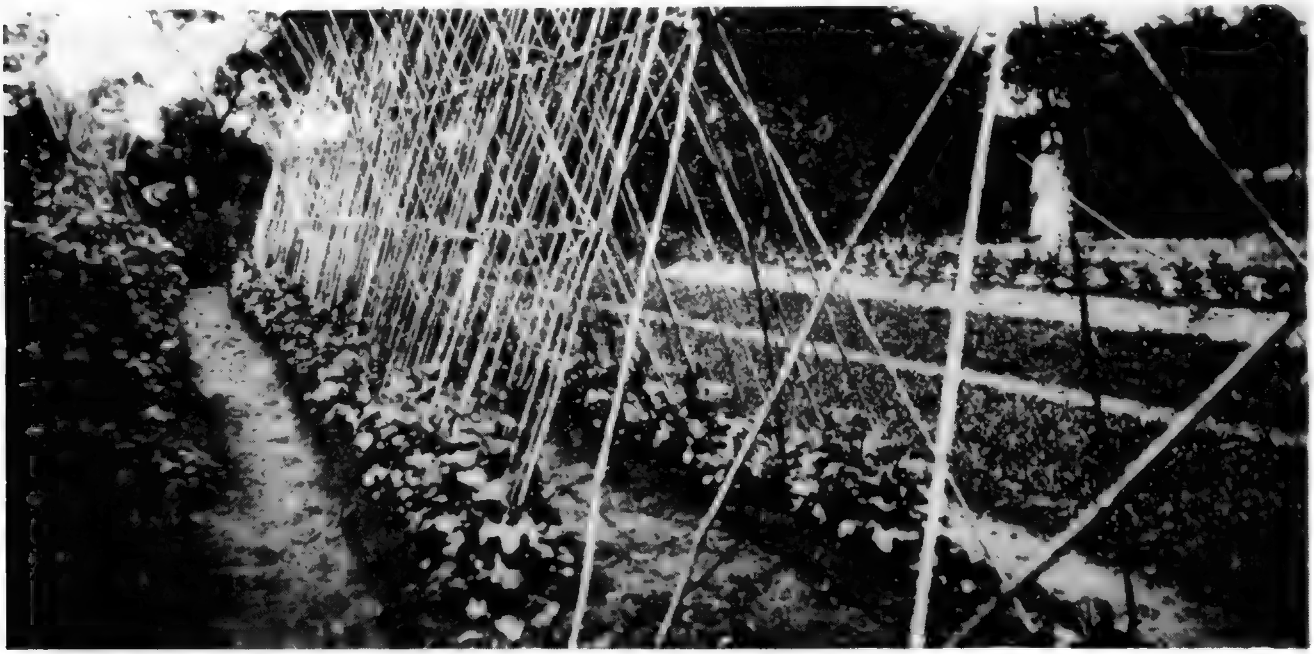
Farmers of Forty Centuries has much to say about manpower resources, of intensive farming, of efficiency and oriental patience displayed by a people who were "capable of making four blades of grass grow where nature grew but one".

Let's close with another quotation from Dr King:

"Almost every foot of land is made to contribute material for food, fuel or fabric. Everything which can be made edible serves as food for man or domestic animals. Whatever cannot be eaten or worn is used for fuel".

Farmers of Forty Centuries, F. H. King, first published 1911, 441 pp, 248 illustrations. Now republished in hard-cover edition from the original plates by Rodale Press Inc.

Price $7.95. Available from Publishers Distributors Pty Ltd, 99 Ryedale Road, West Ryde, NSW, 2114. Postage about 80 cents.



The photo shows how double the number of cucumbers were made to occupy the same ground area, by planting a row on each side of the trellis to give them 'elbow room'.

Working on a dream

Two years ago we had a dream of setting up what we believed was a better way of life for ourselves, our kids, and possibly later, a few others with similar interests.

At that time we had no job, no saleable assets and no money. For anyone in a similar situation, who has a similar dream, here's how we went about turning that dream into the reality of having a place of our own, growing our own vegetables, lots of fruit trees (though mostly still young yet) and well away from the city's pollution.

Rejecting the possibility that someone might want to give us an already established farm with lots of fruit on it, it was obvious that we'd need money, so I got a job.

The $60 a week wages may not have been good money, but it was better than none. We figured that by avoiding ALL unneccessary expenses we could save perhaps $20 per week. When we looked at all the nice, desirable blocks of land it seemed that we would have to spend over 10 years saving every penny we could just to pay for the land, let alone anything to go on it, like a house.

On a map of Australia I could see an area over 2,000 miles in an east-west direction and over 1,000 miles north-south which appeared almost deserted. We only wanted a couple of acres. Surely some of this land must be cheap and habitable. Lands office enquiries proved fruitless. It seems they either don't know anything about this area, or don't want to tell. So I decided to go out and have a look around myself.

Bought an old bomb car (remember the $20 per week?) and went inland, where I heard about all sorts of things like miner's homestead leases and grazing leases. Found a place that looked good and that nobody seemed to want which happened to be on an old goldfield, and spent the next few months trying to arrange officially to take possession, gain possession — or anything.

Very frustrating, but it pays off in the end.

Meanwhile, I was back in the city, working for $20 per week plus keep, which is what my job boiled down to. The next step which suggested itself was to get a garden growing and to find out if I could, in fact, grow vegetables.

All sorts of things happened then. Helpful neighbours came along to give advice and offer information:

"You can't grow beans this time of year," one neighbour informed me after I had sown some, "and the soil here is too acid — needs lots of lime before beans'll grow." Not knowing what lime was I didn't mention this to the beans and gave them instead lots of kitchen scraps and mulch. They in turn gave us a good feed of beans every day for nearly two months — with plenty to spare for our helpful neighbours. There were plenty of failures too, of course.

We also started collecting trees, especially fruit trees. Many will grow from seeds or cuttings, which is cheap. Mulberries are easy and bear fairly quickly too. We never refused a plant — and never regretted it. Surplus plants can be sold, swapped (for those lacking in your collection), or given away, whereas it is often very hard to obtain the right plants later. We finished up with almost 500 fruit trees and seedlings in pots within one year and less than 50 of these were bought from a nursery.

Once we had a clear idea of what we wanted we started two lists: One for items we already had which would be needed when we were ready to go, the other for items that still had to be obtained. Each week we would chase around looking for bargains at junk shops, in sales columns, from friends and acquaintances. We never had much money in the bank, but each week would see something going from the 'to get' list to the 'got already' list, so we could see we were making progress.

Then we spent a lot of time discussing our plans with a wide variety of people. Many, of course, were quite hostile towards our plans, but out of these discussions we got much valuable information.

Because other people have different points of view they frequently think of things which were overlooked previously.

Eventually the time came for moving out. We originally planned to hire a truck, but the opportunity to buy two old, vans came up, so we did and moved everything ourselves.

That was far from the last of our problems, however. When I first tried to drive a crowbar into the earth, it went in less than an inch (but nearly 1½ inches in the 'soft' spots). Hard digging would be the understatement of the year!

When I looked around to see what I could use to build up a garden bed, I saw a river full of white, sterile river-sand, sun-bleached and water-washed, some scattered trees, even more scattered pads of cowdung and a few clumps of dead grass.

It is now just six months since that day we first arrived. It has been six months of very hard work and there's a lot more ahead. The grubs, the grasshoppers, the weather (floods too), the nut-grass and a million other things are trying daily to break our hearts, but we are getting ahead of it all and regretting only that we didn't do it years ago.

If you have similar plans or ideas, here are a few mundane points which may have to be considered, mainly expensive:

Fencing: We don't like fences very much, but in cattle country it is hard to grow a hedge without first erecting a fence to keep the cattle from eating it.

Water: In areas where there is no water for part of the year (or at least not drinking water), a water tank is indicated. Swimming pools may be cheaper than galvanized tanks and a 12 feet diameter by three feet deep pool holds 2,000 gallons. Will you require a pump? Carting water in buckets may be nice, but it's also time-consuming and hard work.

Food: Don't rely on being able to produce enough food to live on for at LEAST one year. Think carefully about how much food you will have to take and how to store it (unless you really enjoy eating weevils), especially if you are going to be away from towns.

Shelter: Sleeping under the stars may be very nice sometimes, but what about when it is cold and wet? If you are thinking about building a house out of natural materials as soon as you arrive, consider how long this will take and remember that this is all time that you cannot be working on getting a garden going (unless, of course, you have helpers) and so you'll need more food reserves.

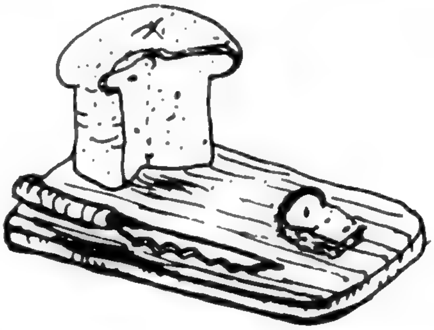
Income: By growing your own food and living simply it is possible to live with very little cash income. But sooner or later tools, pumps, clothing and so on are going to wear out and need replacing. If you are close to towns it may be possible to sell some surplus produce. But if you are in a more remote area (we are 97 miles of very rough road from the nearest pub), other arrangements will have to be made.

Finally, the thing we feel has helped us possibly more than any other single factor is Transcendental Meditation. It really helps to get mixed-up heads together and (from a pure-pleasure angle) it's a good trip too — avoids all the hassles of acid, grass etc. Athena Sikand, of 11 Frederick Street, Welland, South Australia, 5007 will help with TM enquiries (send a stamped envelope).

For all those getting it together, we wish you all the inexpressible pleasures and satisfaction that we are enjoying. If anyone feels like writing for more information or simply to rap, we'd really like to hear from you.

JAI GURU DEV, Marty and Dulcie Jarvis, Gilberton, Kidson, Queensland, 4871.

STARTERS



Here are two more starters, to use in bread recipes as alternatives to yeast, which we've turned up from old books:

1. Boil 1lb flour, ¼lb brown sugar and a little salt in two gallons of water for an hour. When milk-warm, bottle and cork closed. It may be used in 24 hours. A pint of this starter is sufficient for 18lb bread.

2. Pour boiling water into a teacup full of split or bruised peas and place the whole in a vessel beside the fire for 24 hours. It will ferment, with a great deal of froth at the top and "will answer the purpose of a good yeast."

PIZZA

Place 5oz warm water in a bowl, add ¼oz dry yeast (or 1oz compressed yeast), ½ teaspoon vegetable salt, ¼ teaspoon oregano. Stir to dissolve yeast. Add 1 cup wholemeal flour, mix until smooth, then stir in another cup of flour. Cover and stand for ten minutes.

Spread over 12-inch pizza tray. Slice tomatoes over top, sprinkle with finely chopped onion, capsicum, mushroom (and sardines, if required), then grated cheese and finally, kelp granules. Place in 370 deg F oven for 20-25 minutes.

— Annabel Firmstone.

how to kill a pig

In EARTH GARDEN No 8 J. M. Fitzpatrick talked about getting started with pigs, feeding and raising them. For those who wish to have their own supply of pork, the author now outlines the best way of slaughtering pigs at home.

BY J. M. FITZPATRICK

If possible, try to find a neighbour or friend who is slaughtering a pig and "off-side" for him before attempting to do the job yourself.

If this isn't possible, the following instructions are factual and, I hope, clear. Briefly, killing a pig may be divided into the following sections:

1. Kill and stick the pig.
2. Bleed the pig.
3. Scald and gut.
4. Hang the carcass overnight.
5. Break carcass down.

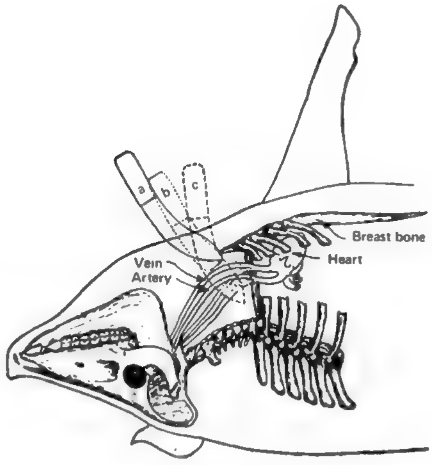
I cannot stress too strongly how important organisation is. Check that all tools and equipment are lined up. A pig weighing 100 lbs feels twice as heavy, so try to carry out the job reasonably close to the pig pen. The less you have to drag the pig about, the easier it is on you and the less risk of bruising the carcass.

If you are well organised for your first "killing" you should be finished in three hours the first day.

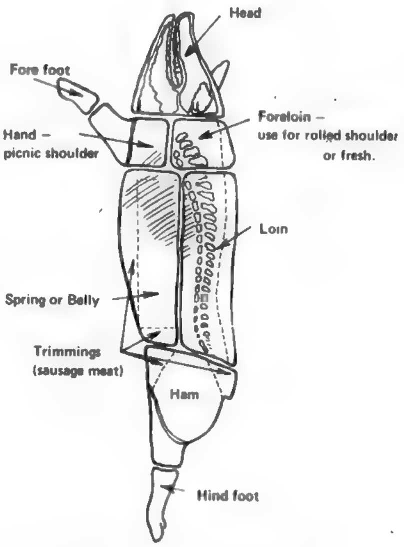
Try to pick a cool day, especially in the summer, and wait until mid-afternoon or later to start. Omit the pig's breakfast that morning.

The first thing to do is to stun the pig. Whether you choose to do this with a hefty blow on the head with a hammer, or with a .22 bullet between the eyes is up to you. Whichever method you choose, please do the job properly. Nothing is more distressing than a half-stunned pig running about. We prefer the second method as it is quick and quiet, and the remaining pigs, if any, don't get upset.

Having shot the pig, drag him out as quick as you can and cut his throat. Don't forget, please, to shut the gate after you in the inevitable excitement. Depending on his size, two hefty males should be able to hold him up long enough to bleed him. If not you will have to hang him for a few minutes.



The three positions of the knife in sticking a pig (cutting the jugular vein to release the blood): (a) knife inserted in the fat; (b) knife above the artery; (c) after downward thrust has severed the artery.



The carcass after cutting up.

While this part of the operation is going on, have someone dependable to look after the water. This is most important as the success of the whole operation hinges on having the water at the correct temperature. Specifically this should be 163 to 166 degrees F. However, most people use two parts of boiling water to one part cold, plus an extra gallon or two of boiling water to offset the coldness of the container used.

You need a container large enough to hold the pig comfortably. An old bath is excellent for this purpose. Have a few blunt, thick pieces of wood handy as the pig must be kept moving and turned over so that every part is scalded ... the object being to soften the outer layer of skin and bristle.

Three minutes should be enough. It is just as important not to leave the pig in too long. You can cut his tail off to test this. Place the tail in the water. When it skins easily the pig is done.

Now, get the pig out of the bath without burning yourself and put all hands to scraping. Speed is the essence of the contract here as you must get the pig scraped while he is still hot. A well-scraped pig should be a smooth creamy pink colour. A good supply of newspaper is necessary to lay the pig on and needs changing frequently.

It is convenient to chop off the pig's head when scraping is completed.

You now have to hang the pig. We use a branch of a nearby tree. Wrap some bagging around the limb beforehand (to stop your rope cutting into the bark while you are hauling him up). Also dig a hole about 2ft x 2ft under the tree, and cover it with a sheet of galvanized iron.

Hanging is simplified if you have available two "S" hooks to pass through the tendons in the back legs, just above the trotters. The idea is to pass these hooks through the holes in a steel fence post so that the carcass is spread enough to allow you to work on it. Knot your rope securely to the post and haul the pig up to a comfortable working height and tie firmly.

Slit the body wall from the crutch to the throat. The air and food tubes should have been loosened when you cut off his head. Cut carefully around the anus and the whole innards should come out. If possible avoid breaking the wall of the intestines.

If you are unlucky enough to get any faecal matter or urine spilt while getting the guts out, wipe the carcass out immediately using a cloth and a bucket of clean water. This is where the hole under your tree comes into use to receive the innards and entrails. Don't forget to fill it in later and cover it to discourage digging dogs. This is the end of stage 1.

Hang the pig overnight to cool and firm. If the weather is very hot you could have some problems. Ideally it should hang for 24 hours, but is usually left only overnight because most people don't have cool room facilities.

Pick the coolest room in the house — usually this is the laundry — and have a large cup hook already in position into one of the ceiling rafters. Remember there is considerable weight involved. It is essential that there is a free current of air around the carcass.

Some years ago we killed a pig in the middle of a very hot spell, and in our anxiety to keep it safe from blowflies wrapped it in a sheet. Next morning we were met with a strong smell of ammonia from the carcass. If for any reason this should happen, wipe it over well with a strong solution of vinegar and water.

A good idea is to place an electric fan near the carcass for a few hours. This helps reduce the temperature of the meat quickly . . . which is what we are trying to achieve. Get up bright and early the next morning and get the pig cut up.

First saw the carcass in half. A hacksaw will do, but a butcher's saw naturally does a better job. Broadly speaking you will be attempting to break each side down into leg, forequarter, chops and hindquarter. The size of the leg and other cuts required will be determined by the number of mouths you have to feed. This is one project you will have to learn by doing. Even if your butchering is a bit rough the pork will still taste good if you have fed your pig correctly.

It is true that no part of a pig need be wasted from the head to the trotters. It is all edible if you feel so inclined. The head makes excellent brawn (if you like brawn). If you are keen to make salami, then good luck! I would be less than honest if I didn't confess that my attempt was a disaster.

However, I can recommend pickling pork. This is dead easy and handy for flaps and other pieces, which can be rolled up and tied. After leaving in the brine for three days, drain, place in clean cold water, add brown sugar, bay leaf, few cloves and some malt vinegar and simmer gently until cooked. The brine is made simply by adding sufficient common salt to your boiling water to half float a potato. Cool the water before adding your meat.

In the past we have left bacon curing to the experts. However, it is becoming increasingly difficult to have privately owned pigs made into bacon. Also the old "long cure" is no longer used. Bacon cured by modern methods has a very limited life outside the deep freeze. So it looks as if we will shortly have to think about home curing.

Illustrations are from the leaflet, "How to kill a Pig", Extension Bulletin No 13.71, published by the Department of Agriculture, South Australia.

sunburn

Heat stroke (and even sunburn) was a problem with sows last summer. This suggestion comes from the Mudgee Pastures Protection Board:

"Painting the roof of the piggery with a reflective paint will help by lowering the temperature by as much as 15 deg F. A suitable paint can be made for about 30 cents per gallon and applied with a heavy broom. Ingredients: 20lb hydrated lime, 5 gals water, 4lb PVA emulsion."

This was for large piggeries, but you could scale down the recipe to paint sheds and A-frames and pig, goat and other animal shelters.

trotters

Remove the claws from the pig's trotters and clean thoroughly. Place in a stewpan with the heart and liver (sliced), six peppercorns, a sliced onion, thyme and a bayleaf.

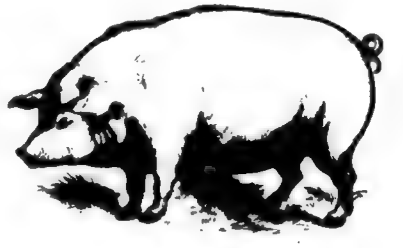
Cover with stock or water and simmer. Take out the heart and liver when tender (15 minutes) and slice finely. Stew the feet until tender, then pour off liquid and thicken with flour. Return the minced liver, simmer gently for five minutes, then serve the trotters (split), with the sauce, mince and pieces of toast.

sausages

Pork sausages may be made from trimmings and odd scraps of meat and fat available after a pig has been killed on the farm.

Crumb a bread loaf, soak it in water, then strain by squeezing in a clean cloth. Add 2 to 3 lbs of mixed lean and fat chopped finely or ground in a mincer. Mix well in a bowl, adding pepper, salt, grated lemon rind and spices (Mrs Beeton suggests nutmeg, sage and marjoram).

Pack the sausage (fried slightly if desired) into cleaned sections of the small intestine of the pig, half filling the skins. Tie with fine string and hang until ready to cook. The sausages may be boiled or fried. Smoke to aid preservation and add flavour.



a ham smoker

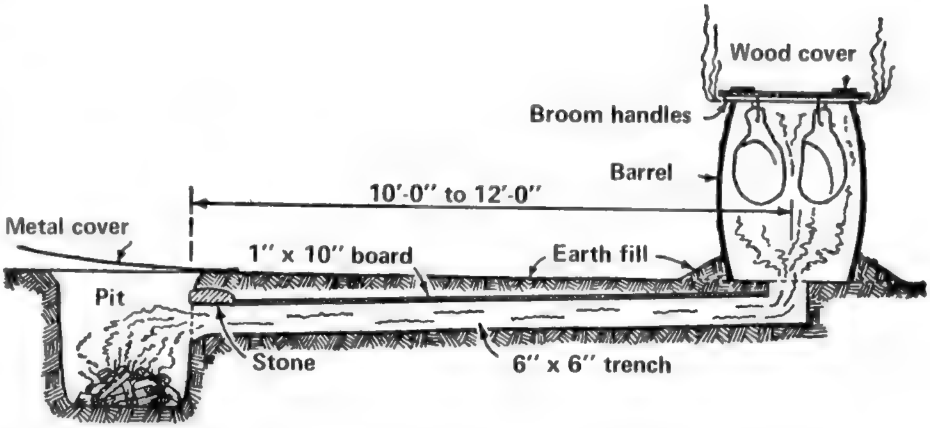
After curing in brine, pork meat is usually smoked to give it a better flavour and colour. Smoking dries and seals the surface of ham for storage, but it does not cook it.

A smoker for small quantities of meat can be made from a barrel, connected by a trench (or stovepipe flue) to an earth or cement fire pit as in the illustration.

Soak hams and shoulders in lukewarm water to remove some of the salt and hang meat by wire or cord and allow to drain and dry overnight. No two pieces should touch one another inside the barrel.

Do not use resinous softwoods, like pine, for the fire. Sawdust or chips of hardwood, apple, peach or oak are best. About 30-35 hours is needed for a moderate smoke and two days or more for a heavy smoke, depending on your preferences. Make sure ventilation is provided so that moisture can escape.

Store the meat in a dark, dry, well-ventilated place. Wrap in muslin to keep insects out. Bacon sides do not keep as well as ham and should be used sooner.



Gary Greenwood, with one of his extraordinary macrame wall hangings. Gary and his wife, Gail, have opened The Old Mill Gallery in Deloraine, Tasmania.

Arts and crafts on exhibition include paintings, pottery, macrame, silver and leatherware. Frequent craft workshops are held. Petrol is available at the bowsers outside and a tea room is planned.

PHOTO: GAEL KNEPFER DOUGLAS

These huge organically-grown pumpkins were produced by Norman Wallace (pictured) and his family at Kergunyah, Victoria. The largest weighed 103lb.

"We give thanks to, firstly 'the soil creatures'," Norman wrote to us recently, "the cow, horse, donkey, goat, sheep, wombat, rabbit, duck, fowl, kangaroo and swallow manures, used along with Indore compost and the spraying with pollen from the local wattle trees, ALL of which helped grow the pumpkins".

He expects to grow larger and heavier pumpkins by this method next year.

earth people write:

Dear Keith and Irene.

You may be interested to know that I am at present living on an Aboriginal Settlement about 50 miles south-east of Katherine. I have been teaching here for four weeks and have already become completely sold on this part of the country.

For those who have not seen it, I would strongly recommend this part of Australia, a most intriguing and awe-inspiring place to visit, if not to live. The scenery literally has to be seen to be believed. The real beauty of the place unfolds gradually to those who are here.

Many people up here have shown great interest in the ideas conveyed through EARTH GARDEN and we may soon see domes popping up all around the settlement. This place is a wonderful source of good scrap material and there seems to be quite a good supply of natural clay of good quality.

The art teacher is keen to begin a Raku kiln and we may soon see the day when the Aboriginal people here have developed enough skills in home industries to maintain a healthy independence from the authorities who originally set up the settlement.

Best Wishes, Ceilidh Fenton, Bamyili, via Katherine, Northern Territory.

Dear friends,

Thank you for saving my life. That's literally what has happened. I started to read EG1 in a Third World bookshop and immediately knew the way of life presented was the right one. For a while I have been wondering what to do with my life . . . I knew I couldn't join the masses and live in suburbia, but I didn't know how else to live.

Now I'm planning my life 'organically', weighing up all the evidence and choosing what is right for me. I'm only 19, so I've a lot of learning yet. I'm glad people are realising the present mode of life is farcical and that some, like you and the EG readers, are doing something about it.

My Public Service job is now not my livelihood. I will be out shortly working in the sun, but still trying to save for my farm. I'm finding it difficult to meet people with the same interests, so if any readers are in a similar position, I'd like to hear from anybody who can tell me about farming, pottery, nature, peace, anything that's essential.

Also, to help you a bit, the Institute of Natural Health is now at 35 Glebe Point Road, Glebe, NSW. Phone: 660 3111.

Peace and happiness, Mark Liston, 23 Derbyshire Road, Leichhardt, NSW, 2040.

Dear Irene & Keith,

My father (who is nearly 72) keeps borrowing my copies of EARTH GARDEN and it's a bit of a hassle getting them back, so you can see why I'm getting an extra set.

Dad has always preached Bio-Dynamic farming and about eight months ago bought himself a home and one acre at Mt Evelyn. He has pumpkins, potatoes, tomatoes and sweet corn everywhere and is really in his element. He's a beautiful man.

We have made a move also (only three months ago), but as yet haven't got much on the go.

Good luck and keep your life beautiful, Jan Davies, Sassafras, Victoria.

Dear Keith & Irene,

I must congratulate you on your publication. It gives me beautiful daydreams, just visualising my eventual plot, and what I can do with it.

My interest in back-to-nature lifestyle has even brought me to closer terms with my father. He is a real garden 'freak' (superb bullock's head tomatoes and big yellow cucumbers this year), and I really enjoy rapping with him about alternatives. Whilst examining a butterfly in its cocoon on the lemon tree, the old fella told me about a barn he helped make at Hill End out of wattle and daub. The place is still as strong as ever after 35 or 40 years.

Peace to you through nature, Kerry Yates, Muswellbrook, NSW.

Dear Keith & Irene,

Twelve months ago we saw our first copy of EARTH GARDEN. Living sluggishly in the city we knew something was wrong and your great magazine pinpointed the trouble. Almost immediately our house was on the market and every spare minute was taken up looking for our spot in the country and reading anything pertaining to homesteading.

It took seven months and a lot of agonizing to get us here, but we now have fresh air, open spaces and our own (almost) beautiful 23 acres for us and our two tiny children to grow on.

We already have our own vegetables and cow-fresh milk, hens coming this week and lots of trees in the planting now that the scorching summer is over. We honestly thought at times it would never happen, so many disappointments when looking for a place, so many unfriendly bank managers.

Colin has a 9 to 5 job until we own the place outright and I seem to be general manager and wood chopper. We really feel for those still wanting to get out and wish them all the luck in the world as it's so worthwhile once it happens. I wonder, are there any others like us in our area?

Much thanks to you for all you have done for us unknowns.

Love and peace, Diana and Colin Frické, Lockington, Victoria.

Dear Keith & Irene,

We've noted with interest the articles on natural rearing of animals in EG6. We too follow Juliette de Bairacli Levy's methods in looking after our dog — a beautiful Rhodesian Ridgeback bitch called Diana.

She has never had injections, worming tablets or drugs of any kind and is in beautiful condition. We only have one problem with her and that is to find a similarly reared Rhodesian Ridgeback dog to mate her with.

John & Robin Thompson, 49 Camp Street, North Katoomba, NSW, 2780.

Dear Irene & Keith,

After a six months working holiday in UK with our four children, we came back to Australia even more determined to realise our long cherished ambition to live more naturally and to try to be as self-sufficient as possible.

We were lucky enough to find a 26 acre farmlet here with an old home on it. The price included five goats, a ram, a ewe and new born lamb. We have since added two calves, two cats and two dogs. Since November last, when we moved in, we have had a continuous succession of fruit, but only partial success with our vegetables. We have accumulated a lot of knowledge of our lack of knowledge so far.

Now we know how to catch our goats to milk them, but it took us two months to find out! Our ram too presented problems, when we tried to transport him in the back of our station wagon with his wife and child to a friendly neighbour who had offered to dip them for us. It took us three tries before we managed it.

We found bread making and beer brewing much less exhausting and are pleased with our success.

Incidentally, the impact of this new life style on our children has been most interesting, not to say rewarding. They learn new skills faster than we do and have noses like tracker dogs for new bits of information. They make friends more easily too.

Sincerely, Muriel & Malcolm Bryan, Inverell, NSW.

Dear Earthlings,

It's nice to know there are more people around interested in saving our Planet Earth. I have been reading many books on pollution and damage to our ecological system and was very depressed until my husband and I came across EARTH GARDEN, the answer we were looking for. We are trying to introduce 'you' to our friends and we are very happy to have found you.

With our baby son we want to begin a new life of wholesome natural food and other simple things sketched in EARTH GARDEN such as goat milking and pottery. We feel strongly about our environment and even feel we wouldn't bring another child into this already crowded world because in 20 years what sort of garden will we have left for him?

I hope for all children's sakes, it is a pretty, fruitful, unpoisoned one, with trees and clean streets and fish and bees and clean air and every bird and animal and bug. Perhaps through EARTH GARDEN we can all help to leave our children and their children's children an earth garden and not a sea-to-sea concrete mess!

Best wishes, Annabel, Greg and Timmy, Blackman's Bay, Tasmania.

Dear Keith & Irene,

I am trying to organise a very small school here of about 20 aboriginals under the aegis of the Education Department. However, being some 700 miles from head office one is given a reasonably free hand. Any EARTH GARDEN readers who are interested in education or have ideas they would like to try, drop, exchange are invited to call in if passing. The school is only 25 miles off the main highway from Mt Isa to Tennant Creek on the way to Darwin.

If anyone is interested and wants further information, please write to me.

Faith, hope and charity, Michael Weir, Teacher in charge (?), Rockhampton Downs School, Barkly Tablelands, Northern Territory, via Mount Isa, Qld, 4825.

Dear Keith and Irene,

It's nice to know there are so many people with a more natural, balanced life. We have just purchased 168 acres near Malanda (Atherton Tablelands) and hope to grow vegetables for the local market. The price of vegetables up here is very high — celery about 80 cents a bunch, as with lettuce and cabbage there are just no green leafy vegies available.

We hope this situation will improve after the wet season as we have to stay here in Cairns for about a year before we can really get stuck into farming.

Best wishes, Bill and Marcie Sarovich, Cairns, North Queensland.

Dear Keith and Irene,

Rai and I are planning, in the next several months, to make a second and more permanent visit to New Zealand — South Island this time — with our two small ones, to see what we can do with grains, vegies, fruit, goats and bantams in the Kaikoura area (east coast north from Christchurch).

Our first stay in NZ, 2½ years, was mainly spent at Wilderland Commune (Coromandel Peninsula, south-east of Auckland), learning a bit about organic gardening and communal living — some of its many aspects, anyway!

We'd be happy to give or receive information to/from EG readers concerning aspects of New Zealand such as those indicated. Lastly, does anyone know where Secret of the Andes, by Bro Philip may be obtained? I'm told it's a book worth the reading.

Love and peace, Ross Moore, c/- Pte Bag 9, Kyabram, Victoria, 3620.

Dear Irene & Keith,

Congratulations and many thanks for such a wonderful magazine as EARTH GARDEN. We are running a trial plot at the moment, and up to now we are having success after only three months. Sand was our problem, but after a few tons of manure and a regular soaking and spraying with a liquid seaweed extract, we can boast a fair crop of strawberries and excellent tomatoes.

Apart from the organic farming and gardening I have started my own worm farm, as I found that our plot was devoid of worms, and I just had to get the soil really built up. I started with about 250 worms and 205 capsules. Incidentally, it took me three full days to find my first egg capsule as I didn't know what I was really looking for.

Once I had found the first one the rest was easy. I now have over 3000 worms and they are increasing every month. I just keep adding them to my plot as I harvest them every month, only keeping the breeders and the capsules! I find it a very interesting hobby.

Catherine Hindley, Bunbury, Western Australia.

WHOLE EARTH EPILOG: Stewart Brand and Diana Shugart are back in business with another catalogue on the Whole Earth pattern, scheduled for publication in July. A lengthy excerpt was printed in the April issue of the American Harper's.

They say the WEE will be supplemental to The Last Whole Earth Catalog, focusing on books, tools and services that have appeared since "we stopped publishing forever in May 1971". Welcome back!

ALTERNATIVE DIRECTORY TO MELBOURNE & ADELAIDE: Also scheduled for July is this catalogue of resources for survival and social change for the two south-eastern cities.

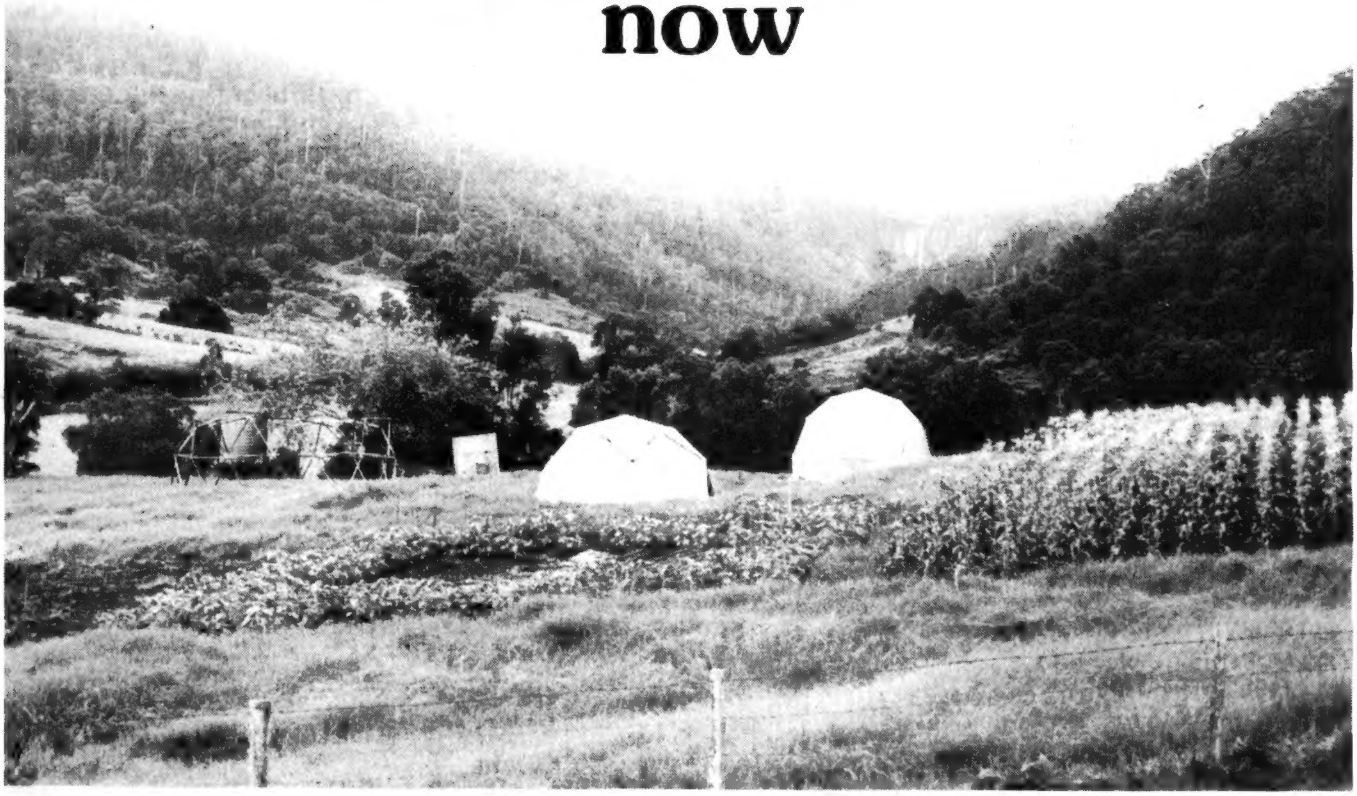
"We hope the directory will stimulate people to seek out some of the many available alternatives to the plastic-wrapped, mass-produced culture that envelops us," the editors say. They are seeking information from anyone or any groups involved in alternative living. The address: PO Box 386, Prahan, Victoria, 3181.

THE WHAT WHERE WHO HASSLES & HOW MUCH BOOK is a directory strictly for backyard inventors, electronic hobbyists, radio amateurs and for people who know what VHF, UHF, semi-conductors, diodes, klystrons and oscilloscopes really are. Edited by Roger and Valrie Harrison, publishers of 6UP Magazine for VHF amateurs, the WWWH & HM Book is a source list of electronic components and equipment and where to get 'em.

Price $1.75, including postage, from Amateur Communications Advancements, 47 Ballast Point Road, Birchgrove, NSW, 2041.

STOP PRESS: Just out — UNCLE AFRELY'S EARTH GUIDE, produced by the whole earth group at Monash University, 128pp of "greenies versus meanies" environment handbook. We'll review it in EG10, but you can get it now from Monash Association of Students, Clayton, Victoria, 3168. At 50 cents, including postage, you can't go wrong!

Tuntable now

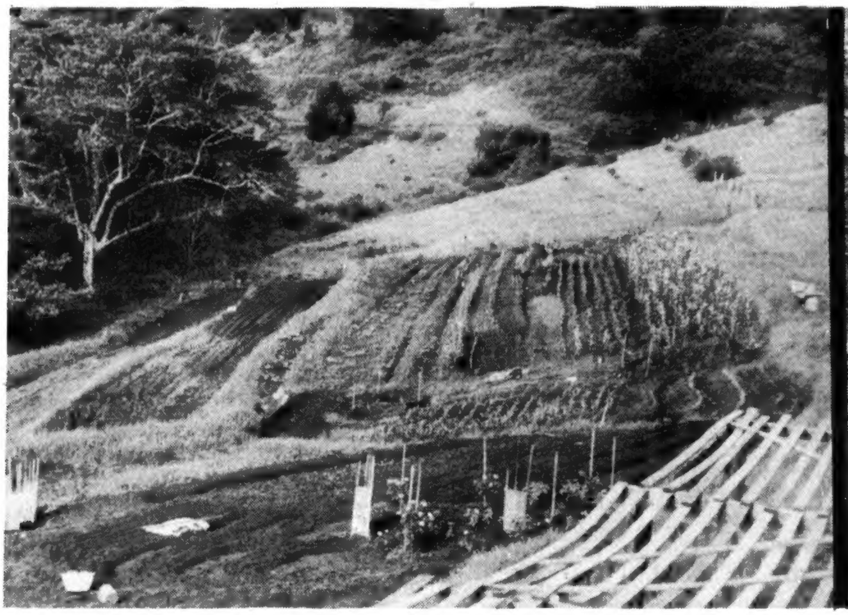


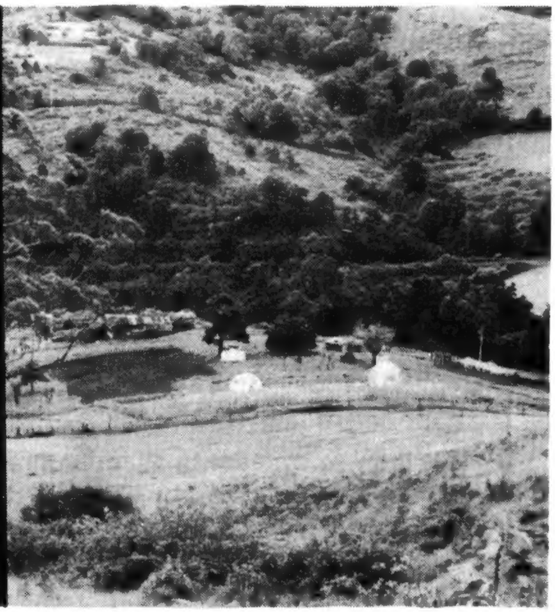
These photos show progress at Tuntable Falls Co-op at Nimbin. "Pictures are better than a story," says Tor Davis, who sent them to us, "they get you there a little easier".

Here's a few words to help you on the journey: ABOVE: Two 15ft domes at centre, corn at right (now harvested) and waterfall way, way over the back. Domes are plastic skinned, with 2 x 3ins timber frame struts and duckboard floors. Third dome (at left) of 25ft is finished, but still to be skinned and set on a platform.

LEFT, BELOW: The north-easterly gardens, terraced to the creek. Roof of a trellis garden house in foreground. RIGHT, BELOW: Looking down from the forest edge of the cleared land. The property has 300 acres cleared, grazing-type country and 700 reasonably well cropped, tropical bushland.

You may still join the Tuntable Co-op. Fully paid shares are $200. Write to: Coordination Co-operative Ltd, Box 2598, GPO, Sydney, NSW, 2001.





COOPERATIVE COMMUNITIES

Cooperative Communities, How to Start Them and Why, Swami Kriyananda, Ananda Publications, California, 7th edition 1972 (first printed 1968), 103 pp.

This small but potent volume is itself a testament to the community ideals it propounds. It has been printed and published by Ananda Publications at the Ananda Cooperative Village, near Nevada City, California.

It tells the story of the founding of Ananda by Swami Kriyananda in 1968, of how it flourished despite many daunting setbacks and of how it continues today.

Ananda is a spiritually-based community which sees no conflict with the commercial world. The search for self-realization, says Swami Kriyananda, may take place while its devotees are pursuing their everyday secular life. So, at Ananda, besides the print shop, other rural 'industries' which have evolved include a health sweet factory, a farm, a meditation retreat, dome building contractors and incense manufacturing.

But Cooperative Communities is in no way a mystical book. Its feet are firmly on the ground as it covers financing, land buying, saving money, preparing for the move to the country, education, economy, rules required (strong but not dictatorial) and a frank discussion of the failures and experiments made at Ananda.

What could be more practical than this succinct extract on building a hogan as a temporary shelter for community pioneers?

"The first residents may be content for some time to live in tents. A practical, and more comfortable, alternative would be the Navajo Indian hogan: Secondhand beams can be bought inexpensively, arranged in a large circular pattern, narrowed slowly to form a rounded roof with an opening in the centre, then covered with plastic and chicken wiring, then with adobe. A movable plastic dome can be put over the opening at the top. For $100, perhaps less, one can have a remarkable roomy, comfortable, well-insulated home!"

Cooperative Communities is a blueprint on the techniques of forming an alternative way of life within a capitalist framework.

Cooperative Communities is available from Varuna Books, PO Box 54, Cleveland, Queensland, 4163, at $1.50 posted. A catalogue of hard-to-find books on metaphysics, self-help, mysticism and religions is available at 25 cents.

Dear Friends,

Thanks very much for all your kind words and good wishes about our expected baby.

As we write to fulfil the deadline of EARTH GARDEN 9 that happy event is just a few days away. So we'll let you know next issue ... but if all those good wishes count, then our little Earth Gardener already has a lot going for him or her.

EARTH GARDEN No 10, out in September, will complete the first series. It will contain a full index to the accumulated contents, making it easier to use the set as a continual reference tool.

We also plan an updated KEY directory to natural sources. So if you know someone or something we haven't yet listed, please write soon.

We'll try to squeeze in as much practical information as we can, to help tide you over until we're back again.

Peace and love,
Keith and Irene

And now for something completely different: EARTH GARDEN T-shirts!

David Hobson of Quicksilver Prints in Melbourne made us up some T-shirts with our Little Digger and the words 'EARTH GARDEN'!

We liked them, and thought you might too. You can buy them in two colours — white or yellow — with the emblem and words in either green or brown. Adults (S, M or L) are $3.50 each and Kids' sizes are $3 each. To order, send us at PO Box 111, Balmain, 2041, your money, size and colour choice.

That's Keith proudly wearing his EG T-shirt in the photo.

EARTH GARDEN No 1

MOVE OUT ... A GAS TRUCK ... BACKYARD FARM ... OUR LIFE ON KIBBUTZ ... MELBOURNE'S MONTSALVAT ... NATURAL GROWING ... COMPOST & MULCH ... NO DIG ... GROW BEAN SHOOTS ... A GARDEN OF HERBS ... COMFREY, THE MIRACLE PLANT ... FRED ROBINSON ... MUSHROOMS.

EARTH GARDEN No 2

NEIL DOUGLAS AND THE ART OF GARDENING ... BUSH FORAGING ... START A GARDEN ... THE RODALE WAY ... NICOTINE SPRAY ... WHOLEFOOD SOURCES ... LIVING THE GOOD LIFE ... STONE & PAPER MULCHING ... HYDROPONICS ... THE KEYLINE FARMS ... THE CITY FOREST ... WHAT'S WRONG WITH FOOD ... WHAT TO DO ABOUT IT.

EARTH GARDEN No 3

MAGIC HERBS ... COMPOSTING ... BUILD A COMPOST BOX ... GARLIC SPRAY ... FAST FERTILISER ... NINE PAGES ON GOATS & HOW TO KEEP THEM ... MICHAEL BODDY'S TALE OF A DOE NAMED ANNABELLE ... COMPANION PLANTS FOR THE GARDEN ... BUILD WITH MUDBRICKS ... TOM THE DOMEBUILDER ... TEAPOT COMMUNAL FARM ... JEFF'S DOME & WATERWHEEL ... BREAD ... POTTERY & SPINNING ... GLENFIELD FARM.

EARTH GARDEN No 4

SPECIAL BEE ISSUE ... TOUCHING ON HISTORY, BEE-LORE, HONEY, PRACTICAL BEEKEEPING & THE SOURCES ... BACK TO THE LAND IN TASMANIA ... ED'S LIFE OF PEACE ... HYGIENIC COMPOST ... ROBERT RODALE ON THE TRANSITION ... A PURPLE PATCH ... ENZYMES & YOUR FOOD ... BLACK SHEEP ... TANNING AT HOME ... ANDREW'S ICY CANDLES ... THE NAMES OF FLOWERS ... THE GENTLE ASS — TALES OF DONKEYS ... WIZARD DOMEKITS ... WEAVE A WALL HANGING ... SAWDUST.

EARTH GARDEN No 5

SPECIAL WIND ISSUE ... THE WINDS, THEIR ORIGIN & MYTHOLOGY ... WINDMILLS ... AN IDEAL DIET ... FEEDWELL FAMILY'S FUNKY BREAD ... NEIL DOUGLAS ON THE BUSH ... CINVA RAM MUDBRICKS ... ROBBING THE BEES ... GARDEN TOOLS ... FLOWERPOTS ... ORGANIC OUTLOOK ... SURVIVING IN SYDNEY ... SEEDS, TREES & PLANTS ... KEEPING FOWLS ... SAVE THE HAMBURG ... THE VEGAN WAY ... FARMHOUSE KITCHEN ... MOON PLANTING ... GRAIN MILLS ... FALLOUT SHELTER.

EARTH GARDEN No 6

SOLAR I: THE SUN CULTS ... SCIENCE & THE SUN ... A SOLAR COOKER ... MAKE A SUNDIAL ... STONEHENGE ... THE LOST WORLD ... LAND LINES ... CLIFTON PUGH VIEWS THE BUSH ... CEMENT RENDERING ... GONWANA JIGSAW (ONE WORLD ONCE) ... SHALOM: LAND OF PLENTY ... CAJUN COOKIN' ... NATURAL ANIMAL CARE ... TASSAJARA BREAD BOOK ... HEALTHY HORSES ... CRYSTAL HILL ... SPIRIT OF NIMBIN ... BUCKY FULLER ... THE NZ WHOLE EARTH ... DOWN BY THE RIVER ... ORGANIC GARDENING.

EARTH GARDEN No 7

THE LAND ... TITLES ... MAPS ... AUCTIONS ... THE GOOD COMPANY ... LAND LINES ... ECO-HOSTEL ... FLIGHT FROM THE CITY ... NIMBIN CO-OP ... ANGORA GOATS ... MULBERRIES ... COUNTRY LEATHER ... MAKE A BELT & SHOULDER BAG ... SURVIVAL SKILLS ... SOLAR HOT WATER ... YOUR OWN HEATER ... FEEDBACK ON SHEEP ... A FUNGUS FEAST ... START A SCHOOL ... SCHOOL GARDENS ... RECYCLE A SCHOOL ... SILENT SPRING ... NATURAL DYES ... MUDBRICKS AGAIN! ... NZ COMPOSTING ... ORGANIC OUTLOOK ... SAND GARDENS ... RAGOUT ... BOOKS BY MAIL ... AND LOTS MORE.

EARTH GARDEN No 8

GAS POWER: GEORGE CHAN'S METHANE DIGESTER ... WATER-WASTE-FUEL-FOOD CYCLE ... MAKE WASTE PAY ... POWER FROM THE PIG PEN ... COUNTRY COTTAGES ... COTTAGE GARDENS ... BY TRUCK TO TASMANIA ... ABOUT PIGS ... CUMBUNGI HATS ... HARMONY FARM ... BEES, GOATS & ¾-ACRE ... GYRO WIND PUMP ... LAW OF THE LAND ... INKLE LOOM ... TAPERS & CANDLES ... FAMILY FARM ... AN A-FRAME RISES ... CONSERVATION KIDS ... COTTAGE CHEESE ... SOURDOUGH ... POTATO 'YEAST' ... HASSLE-FREE SEWING ... EUCALYPTUS.

ORDERS

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AUSTRALIA

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